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ANNUAL

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Digital Edition

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retro* GAMER ANNUAL

Everyone has fond memories of their favourite games, or their first computer or console. We remember collecting Sonic's Chaos Emeralds, booting up our first Amiga game or achieving our highest ever lap time on *Super Mario Kart*. A piece of classic game music will instantly recall a time from our youth, while an image of a retro home computer will inevitably result in waves of nostalgia. With that in mind, we've gone through the last 12 issues of your favourite magazine and cherry-picked the best content for this annual. So grab a cup of tea, sit down and enjoy a selection of awesome features and fantastic interviews covering some of the industry's defining games.

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Distributed Worldwide by
Marketforce, 5 Churchill Place, Canary Wharf, London, E14 5HU.
☎ 0203 787 9001 www.marketforce.co.uk

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Retro Gamer Annual Volume Four
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Future plc is a public company quoted on the London Stock Exchange (symbol: FUTR)
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bookazine series

retro GAMER ANNUAL

THE ULTIMATE GUIDE TO CLASSIC VIDEOGAMING

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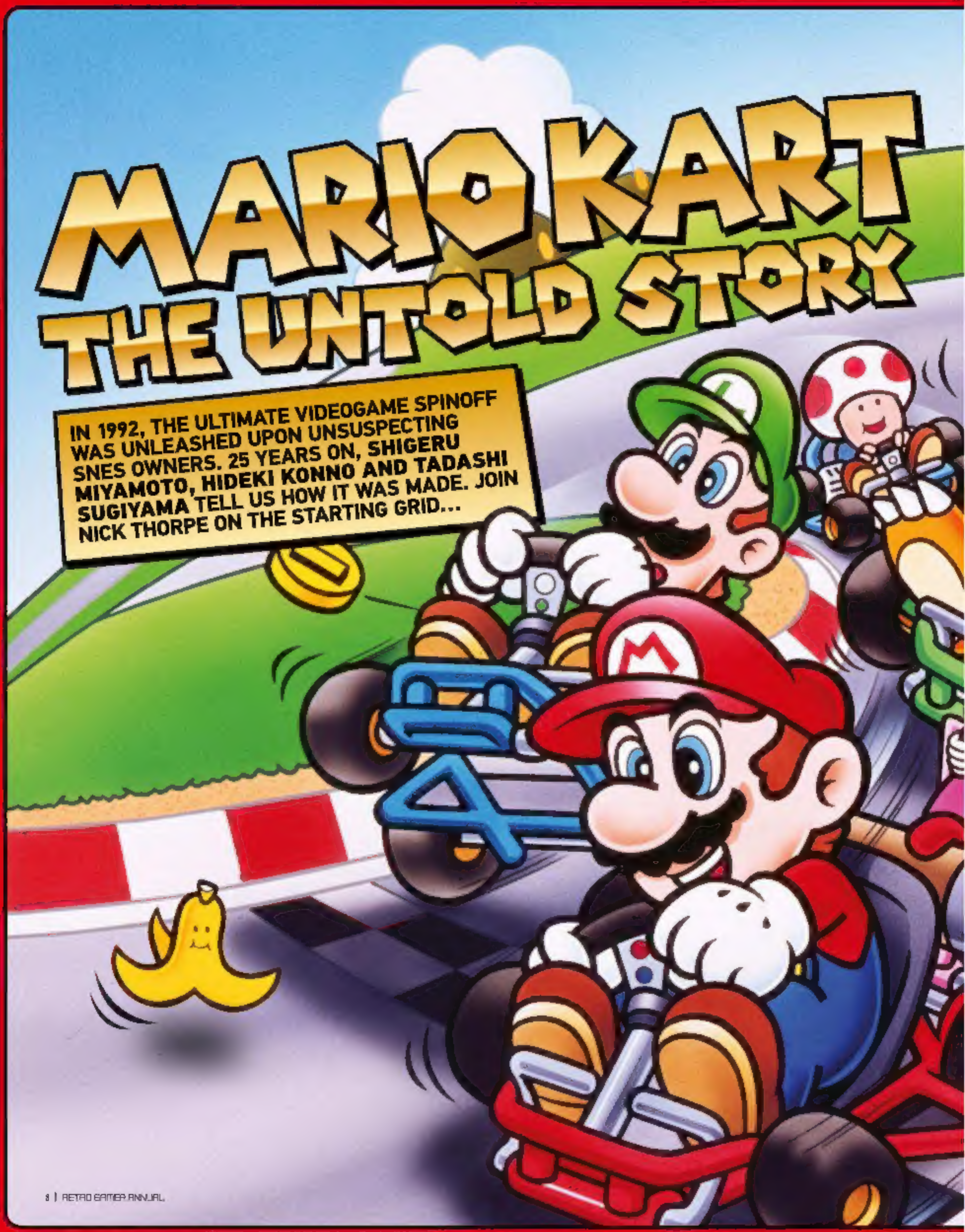
MARIO KART
THE UNTOLD STORY

IN 1992, THE ULTIMATE VIDEOGAME SPINOFF WAS UNLEASHED UPON UNSUSPECTING SNES OWNERS. 25 YEARS ON, SHIGERU MIYAMOTO, HIDEKI KONNO AND TADASHI SUGIYAMA TELL US HOW IT WAS MADE. JOIN NICK THORPE ON THE STARTING GRID...



KARTING KINGS

The Nintendo all-stars that we spoke to about Super Mario Kart

SHIGERU MIYAMOTO
PRODUCER, *SUPER MARIO KART*

HIDEKI KONNO
DIRECTOR, *SUPER MARIO KART*

TADASHI SUGIYAMA
DIRECTOR, *SUPER MARIO KART*

MARIO KART

▲ The Super Famicom and SNES art were marginally different from each other.

Videogame spinoffs are a tricky thing to get right. Often, it seems like someone in marketing has asked the question, "Why don't we take [Property X] and make a [Genre Y] game out of it?" and then left the developers to solve the problem. Sometimes, the idea is sound but hampered by trying to adhere too closely to the original game's mechanics. On other occasions, the spirit of the original property is lost in the transition to a new genre, or the developer has wandered too far from what it does best and delivered a sub-par product. But the world's most beloved spinoff series didn't have any of these problems, because Nintendo EAD never started off with the goal of making Super Mario Kart.

"Our original plan didn't include Mario or karts. The game's roots lie in one of the launch titles for the SNES: *F-Zero*," director Hideki Konno and graphics artist Tadashi Sugiyama confirm to us. The futuristic racing game was a key technical showcase for the SNES, displaying the scaling and rotation capabilities of the console's custom graphics hardware – a feature commonly known as Mode 7. It was an influential and popular game, but one that lacked multiplayer. "The game was designed for single-player gameplay

▲ Hazards on the track aren't limited to those provided by other racers, as the Thwomp here proves

> **"I had absolutely no objections with enemy characters racing against rivals"**
> Shigeru Miyamoto

because of our focus on getting across the sense of speed and the size of the courses," explain Konno and Sugiyama. "It was a prototype for a multiplayer version of F-Zero that ended up being the starting point for Super Mario Kart, and from there we went through a period of trial and error to find what worked."

"You could say that Mario was added to the racing game as a result of this trial and error," Konno and Sugiyama continue. "F-Zero displays the layer for the course over an area of 100 screens in order to create a feeling of speed and scale. However, because of hardware limitations, splitting the screen for multiplayer required the courses be displayed within an area no more than four TV screens wide by four screens high, i.e. 16 screens." Getting multiplayer working was possible, albeit with some sacrifice – and, as it turns out, losing a huge chunk of the map was a sacrifice too far. "We tried creating an F-Zero-style circuit within that limitation, but found it too difficult to race in with an F1-type vehicle, making it impossible to create a course that could give you a feeling of speed."

Given that high speeds were a key characteristic of F-Zero, it was clear that the game's theme needed to change. "In a last-ditch attempt, we came up with what we felt was our only choice, kart racing. Karts were a great fit for these compact courses," Konno and Sugiyama recall. The slower pace of the game certainly suited the smaller courses, although the development team would have to be inventive with their 1024x1024 pixel design space. "However, with the drivers wearing helmets and racing suits, they all

STARTING GRID

Your guide to the eight racers found in Super Mario Kart

MARIO

SPECIAL ITEM: ★ RIVAL:

ACCELERATION ★★
TOP SPEED ★★★
WEIGHT ★★
HANDLING ★★

PEACH

SPECIAL ITEM: RIVAL:

ACCELERATION ★★★★
TOP SPEED ★★
WEIGHT ★★
HANDLING ★

LUIGI

SPECIAL ITEM: RIVAL:

ACCELERATION ★★
TOP SPEED ★★★
WEIGHT ★★
HANDLING ★★

TOAD

SPECIAL ITEM: RIVAL:

ACCELERATION ★★★
TOP SPEED ★
WEIGHT ★
HANDLING ★★★

01' 51" 56
00' 54" 86
2
E
BOWSER
SPECIAL ITEM
RIVAL
ACCELERATION
TOP SPEED
WEIGHT
HANDLING
YOSHI
SPECIAL ITEM
RIVAL
ACCELERATION
TOP SPEED
WEIGHT
HANDLING
KOOPA TROOPER
SPECIAL ITEM
RIVAL
ACCELERATION
TOP SPEED
WEIGHT
HANDLING
DONKEY KONG JR.
SPECIAL ITEM
RIVAL
ACCELERATION
TOP SPEED
WEIGHT
HANDLING

MARIO KART

TEAM PICKS

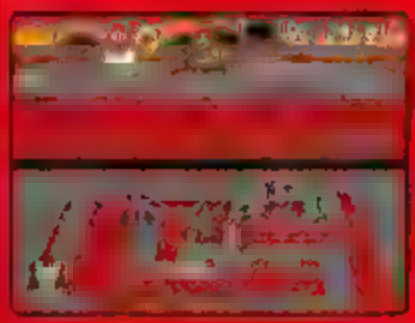
Everyone's got a favourite track in Super Mario Kart – here are the ones we particularly like.

DARRAN
RAINBOW ROAD

■ This track felt like a loving homage to the racers I used to play in my local arcade. It's certainly not the easiest of tracks and I was never amazing at it, but the feeling you get when you complete the course without falling off is mighty sweet.

NICK
DONUT PLAINS 3

■ With a little bit of practice, this course will let you unleash your inner scumbag – which is exactly why I love it. Mastery of mushrooms will allow you to hop over the walls, making for huge sneaky shortcuts that will keep you ahead of the each.

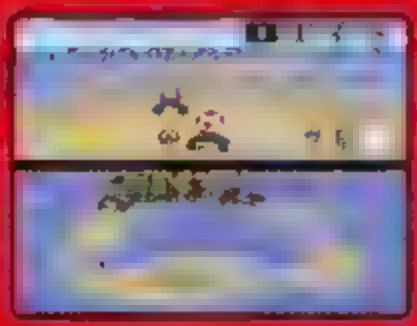


DREW
BOWSER'S CASTLE 2

■ I always felt a degree of trepidation when navigating Bowser's Castle. Maybe it was the Thwomps, and the fact that this was the course that me and my brother would always use in our serious head-to-heads.

SAM
KOOPA BEACH 1

■ I was going to come boldly marching in with Battle Course 1 but unfortunately the parade was briefly cancelled due to rain – courtesy of Darran, I guess it's speeding through the shimmering shallow waters of Koopa Beach while [illegible]



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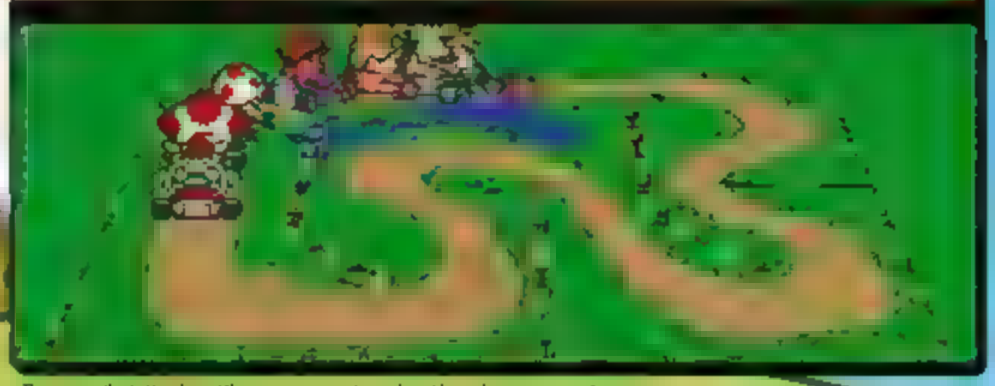


■ The map on the bottom half of the screen never lets you forget how close your opposition was.

I Once I started test playing I would get excited and start shouting but while I played

MARIO KART

HIT STOP

Mario Kart, and kart racers in general, just wouldn't be the same without the ability to attack your fellow racers or close the gap with a boost. We take a look at the items that were on offer in 1992.

MUSHROOM

This item gives you a brief burst of speed, and is commonly handed out to racers that are falling behind the pack. Use it to cover rough terrain for

STAR

temporarily boosts your speed and enables you to attack other racers by ramming them!

FEATHER

Using the feather will allow for a super high jump that creates major shortcut opportunities. These are most commonly found in the Ghost Valley circuits.

BANANA PEEL

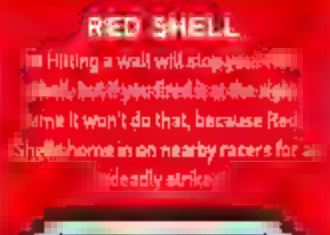
This defensive item is commonly tossed out to the front runners and can be thrown forwards or backwards. If another racer hits it they'll spin out immediately!

"We were also playing the game as we were making it, so I knew it was fun."

W

GREEN SHELL

Once fired, this projectile weapon will continue in a straight path until it hits a wall, at which point it'll rebound off. It's a key item for experienced racers with deadly aim.



RED SHELL

Hitting a wall will stop your shell, but if you fire it at the right time it won't do that, because Red Shells home in on nearby racers for a deadly strike.

BOO

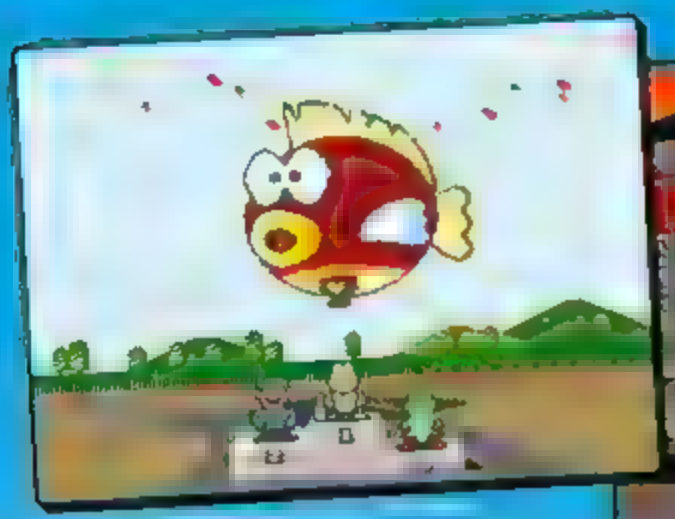
Using the Boo will give you a ghostly countenance, turning you invisible and allowing you to pass through other racers – but stealing your opponent's item is the best bit.

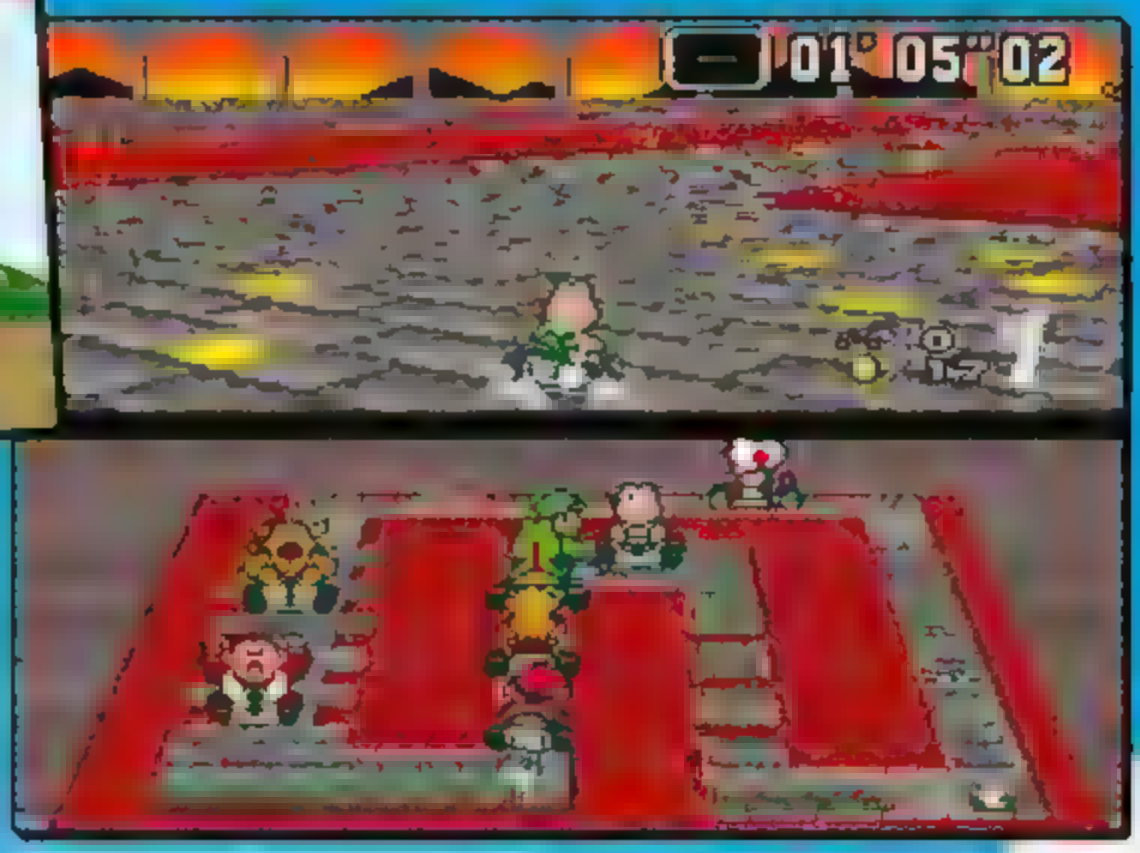
COIN

Pulling the trigger on this will give you a couple of coins, boosting your top speed for as long as you happen to hold on to them and giving you an edge on your competitors.

LIGHTNING

This exceptionally uncommon item causes huge commotion, shrinking enemy racers except for the user. From there, they're slow and easy to squash with your wheels.





W

MARIO KART

TIMELINE ATTACK

MARIO KART 64

N64, 1996

The first sequel to *Super Mario Kart* used the [illegible] to power to create the series' first full 3D environments for [illegible] and introduced the dreaded Blue Shell.

MARIO KART SUPER CIRCUIT

GAME BOY ADVANCE, 2001

Like the SNES original, the first handheld *Mario Kart* used Mode-7-style flat, rotating tracks. It also included the SNES courses as unlockable extras, combining with the game's 20 brand-new tracks for a mammoth roster of 40.

MARIO KART: DOUBLE DASH!!

This experimental title required players to pick two racers which could be freely swapped during the race, and karts were also chosen separately. Special [illegible] included, for regular players as well as the CPU.

MARIO KART ARCADE GP 2

ARCADE, 2007

This is more of an update than a full-blown sequel, featuring the original game's content as well as new items, racers, tracks and a somewhat irritating colour commentator. Unlike the original, expert models allowed players to use magnetic memory cards.

MARIO KART DS

The second handheld *Mario Kart* game was Nintendo's big step into the world of online gaming, offering friends the chance to play against one another without bundling onto a sofa together. The inclusion of retro tracks was also

MARIO KART ARCADE GP

The first coin-op instalment in the series was developed by Namco and included Pac-Man as a special guest racer. A ridiculous 93 items are included, and for the first time since the original, coin-track coins make their return.

MARIO KART WII

Races were revamped up to 12 participants, with wilder [illegible] competition. For the first time, players could choose to use motorbikes instead of karts, and motion controls mimicking the use of a steering wheel were added.

MARIO KART 7

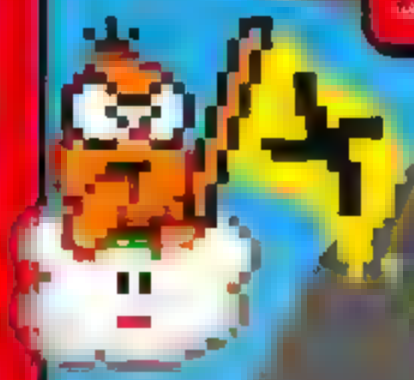
3DS, 2011

Co-developed by Retro Studios and Nintendo EAD, this game returned coins to the main series after a lengthy absence, and added underwater and gliding sections. It was also possible to build your kart from three main components – body, wheels and glider.

MARIO KART ARCADE GP DX

ARCADE, 2013

This major overhaul of the *Mario Kart Arcade GP* series adds heavy modifications to existing track layouts, including the addition of underwater and gliding sections. It's also still being updated today, and can be found in Western arcades.



MARIO KART 8 DELUXE

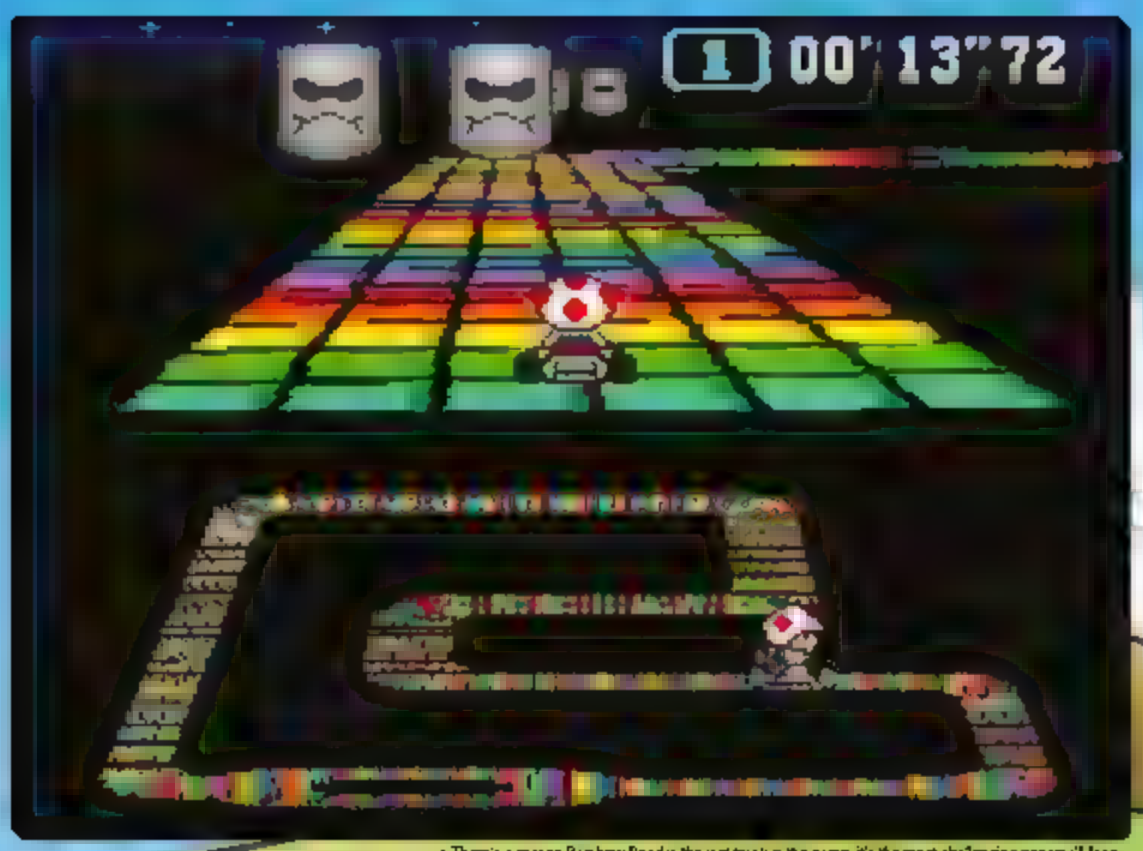
SWITCH, 2017

This enhanced version of *Mario Kart 8* includes all the Wii U version's DLC, a revamped Battle Mode with new courses including a Splatoon-themed arena, new characters and the ability to hold two items at once. Visuals are also upgraded to 1080p.

MARIO KART 8

WII U, 2014

The first *Mario Kart* of the HD era adds anti-gravity sections, allowing for impossible curves and loops. Bikes make their return and ATVs debut, while DLC adds representation for other Nintendo properties including *F-Zero*, *Animal Crossing* and *Excitebike*.



▲ There's a reason Rainbow Road is the last track in the game. It's the most challenging one you'll face

BATTLING BACK

How Super Mario Kart is influencing Mario Kart 8 Deluxe on Switch

▲ The DNA from the original Super Mario Kart is still clear in the

Sometimes, you don't know what you have until it's gone – and that's certainly true for many elements of the original *Super Mario Kart*, which have come and gone over the years. Character-specific items and collectable coins were both omitted from *Mario Kart 64* but later returned to the series, and *Mario Kart 8 Deluxe* is bringing back more SNES-era features that have been missing as of late.

With the original Wii U version of *Mario Kart 8*, the biggest complaint that many had was the omission of the classic Battle Mode, a feature which originated on the SNES. Instead of being able to roam around specially-designed arenas that encouraged carnage and interaction, the game featured battles on regular racing tracks, a compromise which satisfied few. The good news is that SNES-style battling is back in *Mario Kart 8 Deluxe*, and a variety of retro arenas are making their return along with it, including the SNES Battle Course.

That's not the only returning feature, either. While Bandai Namco's arcade games have featured the Boo as an item consistently, Nintendo's *Mario Kart* games haven't done so since *Mario Kart DS*, but it's back for *Mario Kart 8 Deluxe*. Also returning is the feature, not seen since *Super Mario Kart*. This battle mode exclusive item doesn't just allow you to [illegible] enemy shells and bananas alike – at close range it'll also let you steal another

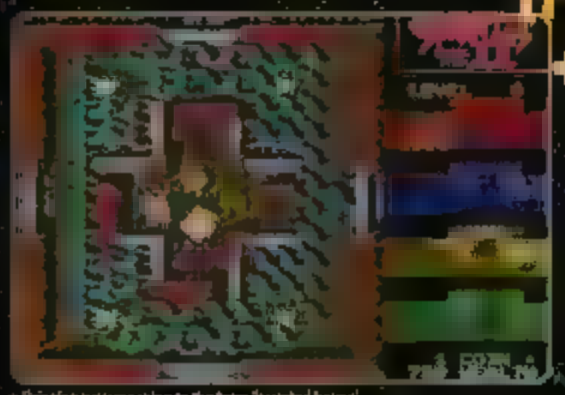
Gaun

II

Elf needs food badly, again. Warrior is about to die, once more. But was Gauntlet II really just a lazy rerun of the original game? Martyn Carroll sets off to explore the sequel's hidden depths

Precisely zero people were surprised when Atari Games released Gauntlet II in August 1986, less than a year after the first game debuted. The original Gauntlet was, after all, a smash-hit success that outearned every other coin-op in the arcade. This was not mere happenstance – Gauntlet was specifically engineered to make as much money as possible.

The game's project leader, Ed Logg, was trying to work out a way of increasing earnings at a time when players in the US were not prepared to spend more than a quarter on a single credit. And when they deposited that quarter, the game was engaged for two minutes or however long



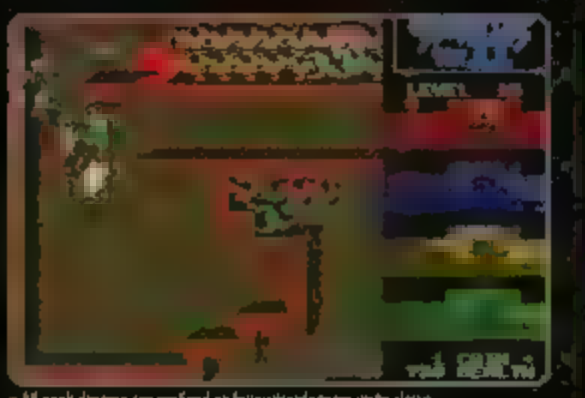
Bringing help meaning to the term 'haunted house'.

GAUNTLET

during which time a crowd might gather but they would have to wait to play. Ed's eureka moment was creating a game where four players could play simultaneously. They could join in or drop out at will, and by inserting extra coins they could prolong their playing time. Four players effectively meant four times the earning potential of each machine. Of course, this gambit would have backfired hilariously had Gauntlet been a terrible game that no-one wanted to play. But thanks to a dollop of Dandy, a sprinkle of D&D and a good amount of Atari arcade expertise, the game was a genuinely fantastic, action-packed, four-player dungeon-crawler. Gauntlet was the hot coin-op of 1985.

The game remained an important property for Atari throughout the following year. Numerous revisions were issued in the form of EPROM updates that fixed bugs and tweaked gameplay. A later revision also addressed the issue where a skilled player could survive almost indefinitely on a single credit (which was not good for profits). A 'proper' version 2.0 was always in the works, however, and according to Bob Flanagan, who designed and programmed the Gauntlet games alongside Ed Logg, it certainly wasn't a rush job despite it arriving so soon after the original. "We spent about ten months coding

» Force-fields and stun tiles were two new elements, and they were introduced early on in the game.



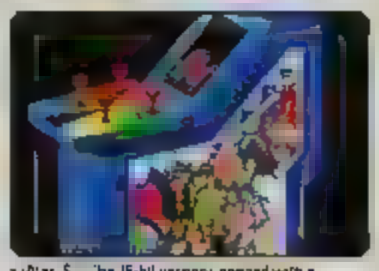
» All geek dreams are realised as four wizards team up to slay a dangerous dragon.

DEVELOPER Q&A

Richard Costello was responsible for the ST and Amiga versions

How did the *Gauntlet II* conversion come about?

I was working as an in-house programmer at Gremlin Birmingham, which was part owned by Geoff Brown of US Gold. For Gremlin I was working on research and development for the Atari ST. The ST version of *Gauntlet* had been outsourced because at the time Geoff didn't have any in-house 16-bit resource, so I volunteered to code *Gauntlet II* in my spare time for US Gold whilst I worked for Gremlin during office hours.



The Atari ST version opened with a sequence featuring an animated coin-op cab

The ST version of *Gauntlet* looked good but suffered from choppy character movement and scrolling. Was this something you specifically tried to resolve with *Gauntlet II*?

There were two problems with the Atari ST *Gauntlet*. Firstly, the programmer tried to replicate the arcade machine graphically by using 24x24 pixel sprites and 24x24 pixel background tiles, and secondly, he was a PC programmer, used to x86 and primarily writing in C rather than pure assembler. The above worked on the PC because it had a byte-per-pixel screen mode, but with the ST each set of 16 pixels on the screen were represented by eight interleaved bytes, which meant accessing the screen was more complex and time consuming. To get the frame-rate and playability the graphics needed to be adjusted to a more optimum size for the ST's hardware, namely 16x16 pixel sprites on a 16x16 pixel tile background. Plus coded *everything* in 68000. The smaller graphics and optimised format meant I could draw the scrolling, tiled background with up to 28 foreground sprites at 25Hz.

Did you have the coin-op?

We did have the machine in the office, and we could enter a system check mode which would display the contents of memory on the screen so Kev Bulmer, the artist, could review the frames of the characters – however he still had to redraw all of them. Tony Porter's editor on the Spectrum was used to generate the level data – I just wrote the 68K interpreter to take this data and present the right stuff on the ST's screen.

Did including support for four-players, via the printer port, cause any development headaches?

I actually invented the theory and the wiring for the connector. It was a simple idea because back then the printer port was just a parallel interface (8-bit port with a couple of bits for handshaking) so with five switches per controller (up, down, left, right, fire) you just needed ten bits for another two users. I was amazed at how quickly my suggestion turned into a few thousand connectors appearing in the CentreSoft warehouse.

Overall, how pleased were you with your finished versions?

I was more than happy with them. I used to enjoy doing coin-op conversions because the specification was set in concrete before a line of code was written, so no moving goal posts. From a coding standpoint it was my second favourite project behind *Mortal Kombat II* for the Amiga.

Getting too close to a dragon was not overly recommended.

Gauntlet II," he says, "which was less than the 12-16 months for Gauntlet, although a lot of that was hardware, the maze editor and support."

As you'd imagine, the sequel was produced purely to capitalise on the continued popularity of the original. "Earnings were strong and there was determined to be a market for a new version. Gauntlet II was simply the next product, intended to have new levels, new gameplay, and most importantly the ability to have any character at any position." As Bob states, a key feature was that players could now select any character they wanted, whereas in the original if a character was already in play they could not be chosen. It was observed that some players would not join in if Warrior was already taken, for example, or if the Valkyrie was the only available character, so this was mainly done to remove another 'block' to playing the game. But Bob is adamant on the

Level 8 introduced one of the more perplexing features – [illegible]

"I volunteered to code Gauntlet II in my spare time for US Gold whilst I worked for Gremlin"

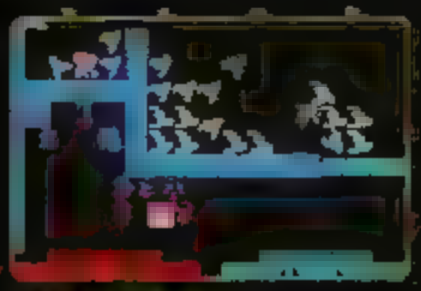
Richard Castello

position that the sequel wasn't solely about boosting takings. "There was a definite desire to evolve the gameplay experience," he reveals, "with the ability to have four wizards instead of one, for instance, and the dragon, the secret rooms, rotated and flipped mazes, 'IT' gameplay, power-ups, and many other game extensions."

The sequel did introduce a lot of elements. There were new amulets that bestowed the player with temporary abilities, including reflecting shots (you could bounce shots off walls), transportability (you were able to move through walls and other objects) and repulsiveness (enemies would be repelled away from you). New maze features were also introduced, including intermittent force fields that you had to dash past, stun tiles that briefly incapacitated players, and trap tiles that would remove walls that were often holding Death and other nasties at bay. Some walls could be shot or shoved, others were invisible or would move on their own. Sometimes exits would move, sometimes exits were fake. All this resulted in levels feeling more interactive and 'alive'.

CONVERSION CAPERS

Just how faithful were the home versions to the Atari coin-op?



ZX SPECTRUM

■ The same team responsible for the Z80 *Gauntlet* returned for the sequel. Most of the arcade features were included and the game played perfectly well, despite the lack of smoothness due to character scrolling.

COMMODORE 64

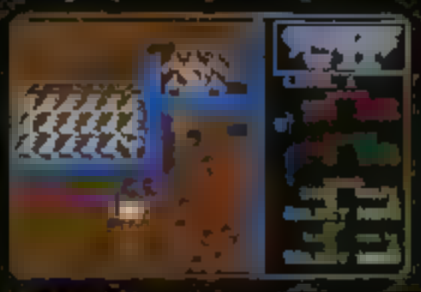
■ The original C64 version of *Gauntlet* was solid, yet it suffered from some bugs. The sequel was more polished but ran at a slower pace than the original. The result was a dungeon crawl in the most literal sense.

AMSTRAD CPC

■ This was the pick of the 8-bit home computer versions, as it featured the detail of the C64 release while maintaining the speed of the Spectrum game. Some decent music and audio effects rounded off a great conversion.

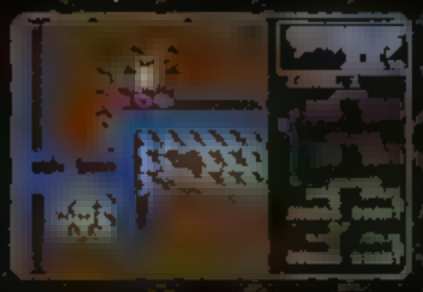
ATARI ST

■ Self-billed as, "The most authentic simulation yet from an arcade machine," and for once that was pretty accurate. It featured all of the coin-op's gameplay elements along with the digitised speech and support for four-player co-op.



AMIGA

■ The original *Gauntlet* never made it to the Amiga, so expectations were high for the sequel and it didn't disappoint. It was based on the ST version but in this was no bad thing. The four-player option was carried over, too.



PC/DOS

■ The PC release was based on the ST and Amiga versions and the result was similar in terms of look and feel. It also included an alternative version with a smaller game screen for PC owners with slower processors.

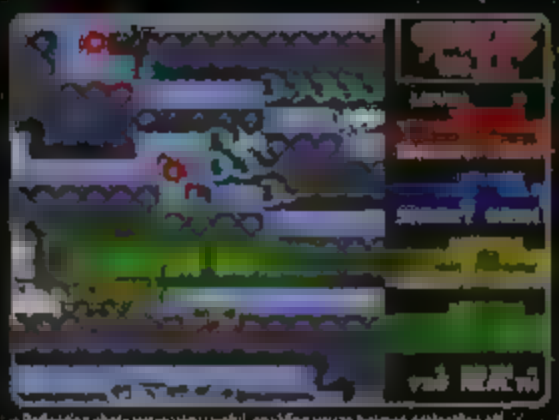
NES

■ Arriving late (in 1990) but worth the wait, the NES version squeezed the arcade game onto a cartridge. It featured all of the enemies, collectables and secrets, plus lots of digitised speech and even four-player support.

GAME BOY

■ Trying to replicate sprawling, enemy-filled dungeons on the Game Boy's tiny screen was a tough ask, but the end result actually worked rather well – particularly in two-player mode using the Game Link feature.

Treasure rooms returned, and, once again, you had to grab as much loot as you could before the timer ran out.

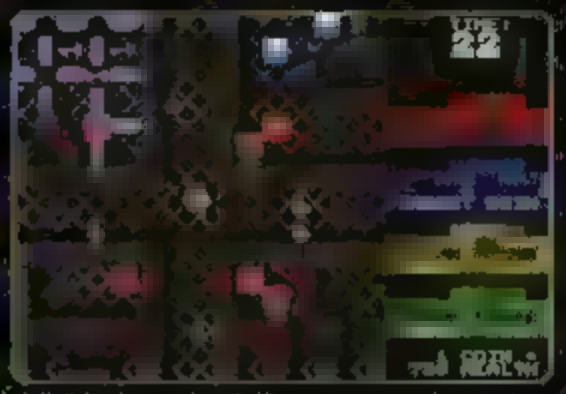


Reflecting shots were very useful, enabling you to bounce projectiles off walls to get the drop on enemies.

The original dungeon dwellers returned along with some new monsters. The most inventive was 'IT', a swirling apparition that would curse players on contact. Once cursed, enemies would swarm towards you, and the only way to remove the curse was to pass it onto another player, resulting in madcap bouts of dungeon tag. Finally there was the dragon, which was the largest enemy and, in some ways, also the biggest disappointment. Dragons would lurk in various levels and often guard the exit, but anyone hoping to encounter a massive, fire-breathing beast on, say, level 100 would be disappointed. The sequel followed the design of the original where the game continued ad infinitum and there was no final dungeon (unlike the NES version of the original Gauntlet which did end at level 100 with a boss battle against a three-headed dragon, no less).

"I did not use any of the original C64 code even though I had access to it all"

Stuart Gregg

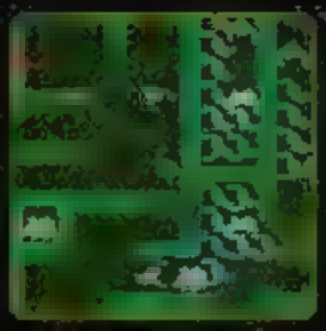


In North America accessing and raiding a secret room gave players a code which they could use to win prizes from Atari.

There was no end game," confirms Bob. "The idea for the Gauntlet series was infinite play. The dragon and the treasure rooms were meant to help with shorter-term goals and completion feelings for the player. Many players felt that there were an infinite number of mazes and possibly that they were generated – that was an authoring cheat from us." For the record, there were actually 105 standard levels, plus 11 treasure rooms and a couple of secret rooms, making 118 unique levels in total. Each level could be flipped horizontally, flopped vertically, and also flip-flopped, so there were 472 variations overall, which would repeat forever, in theory.

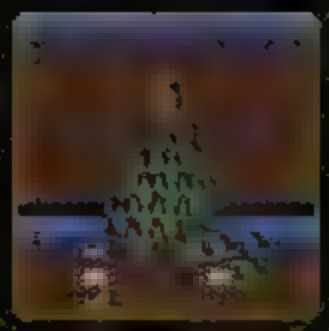
RUNNING THE GAUNTLET

Some tips and tricks to help improve your subterranean life expectancy



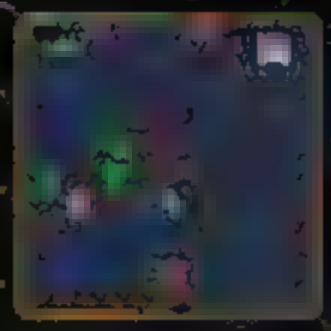
ELF

■ If you're playing solo, choose Elf. He's quick, has good shot speed, receives lots of food, and if you build up his magic he's as powerful as Wizard when casting spells. Valkyrie is also recommended.



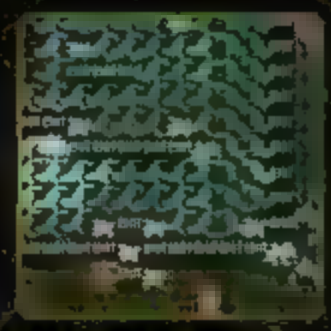
GHOST HASSLE

■ Of all the regular enemies ghosts are the most dangerous as they can't be defeated hand-to-hand, and will sap strength on contact. Take them out (and their generators) with shots at the earliest chance.



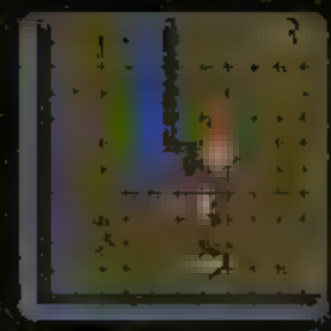
BLOBS BEGONE

■ These annoying acid blobs are not as invincible as the game suggests. You can destroy them by using a magic potion to stun them, then quickly using another potion to remove them completely.



[illegible]

■ As in the original *Gauntlet*, if you stall for a while all of the doors will open, and then eventually all of the walls will turn to exits. It just takes a lot longer for this to trigger in the sequel.



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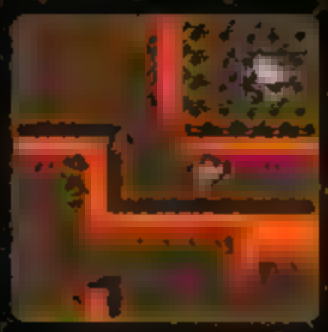
■ The only way to get rid of the 'IT' curse, besides passing it to others, is to exit the current level. Let the affected player rush towards the exit while you protect them from the pursuing hordes.

The mugger was a new, thief-like enemy who would dash in and steal your health.

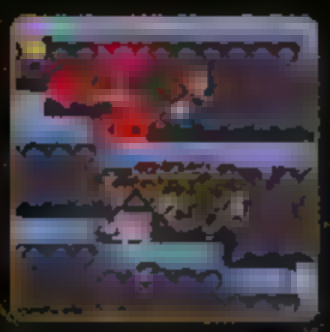
On first impressions Gauntlet II may have looked (and sounded) like a quick cash grab, yet it introduced a number of new game features that, while mostly minor, made the game more attractive and challenging – particularly for those that had exhausted the original. It didn't become so repetitive so quickly, that's for sure. Dedicated Gauntlet II cabs were manufactured but the game was mainly sold in the form of conversions kits for Gauntlet, and while it's always a shame to lose an original cab to a kit, in this case it was more acceptable as the sequel really did supersede the original.

To prove the point try going back to the original after playing the sequel for any length of time. That's almost certainly the reason why Sony opted to release the sequel on the PS3 in 2007, as a digital release complete with online co-op support. Sadly that release is no longer available, but both titles have been included on the various Midway Arcade compilations released over the years, and in 2016 the games popped up in Lego Dimensions as part of the Midway Arcade level pack. There are plenty of opportunities to revisit Gauntlet II – and these days you don't need a sack full of silver coins to play.



STOP THIEF

■ The thief in the sequel is more tricksy and will try and dodge your shots. Remember that the thief will follow your path, so it's possible to stop him by pushing a movable wall to block him off.



DRAGONS DEN

■ Dragons take multiple shots to kill. The best method is to hold the reflective shots potion and bounce your shots off a wall. Alternatively, get another player to divert the dragon's attention.

DEVELOPER Q&A

Stuart Gregg unveils the details of the Commodore 64 version

How did you land the job of converting *Gauntlet II* to the C64?

I was hired at Gremlin Birmingham as a junior programmer, about halfway through the original *Gauntlet* development. I was the general dogsbody. I did some testing, wrote some of the intros and so on. After that, I spent a lot of time under programmer Tony Porter's wing and worked on a couple of Z80 projects with him. I also made a start on a Thompson port of *Gauntlet* based on the Z80 code. When it was time to do *Gauntlet II*, US Gold didn't want Bob Armour to work on it as he'd been late with the C64 version of *Gauntlet* and didn't iron out all of the features until he had finished the Atari 8-bit version.

So Bob was off the job and you were brought on?

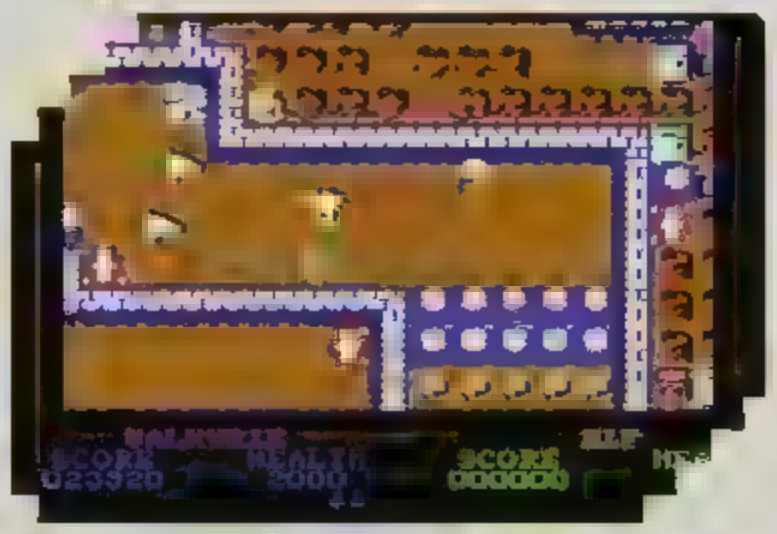
Yes. I had a lot of respect for Bob. He came from Atari development and was trying to push the envelope with the original C64 version. He got a lot of pressure and flack for not getting it done on time, especially as it was US Gold's big title for Christmas and I didn't want that to happen to me.

How did you approach *Gauntlet II* then? Were you able to update Bob's code?

I didn't use any of the original C64 code even though I had access to it all. After the issues with the original *Gauntlet*, and the experience I had working with Tony, we decided to basically port the Z80 version to the C64, mainly to make sure it was ready in time for Christmas. So we decided to get rid of smooth scrolling and run at 25fps. It basically plays like the Amstrad CPC version.

That explains why the sequel runs more slowly than the original! Were you pleased with how it turned out?

Overall I was pleased with it. I was 20 at the time, it was my first big title, and I got it done on time. Given my experience, or lack of, at that time as a developer, it would have been silly to try and do more.



40 YEARS OF THE

commodore

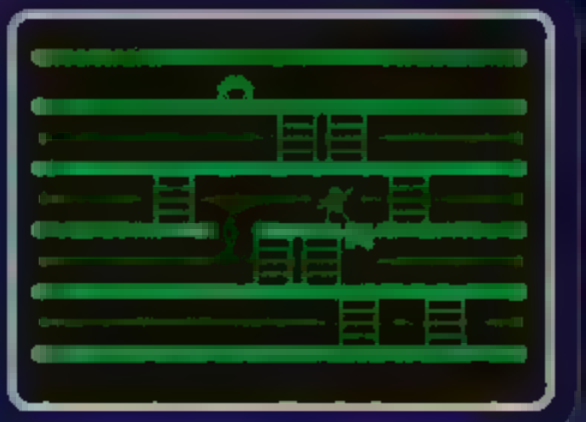
PET

IN CELEBRATION OF THE COMMODORE MACHINE'S 40TH ANNIVERSARY, ANDREW FISHER LOOKS BACK AT THE OFTEN-OVERLOOKED FORMAT, ITS IMPORTANT GAMES AND HOW IT KICKSTARTED CAREERS

The story of Commodore's PET begins in 1976 with its predecessor – the KIM-1, a kit computer based around Chuck Peddle's 6502 processor from MOS Technologies. Commodore eventually took over MOS, and Chuck established his vision of a fully-assembled personal computer to Commodore founder Jack Tramiel. Steve Jobs and Steve Wozniak were slowly selling Apple-I kits and dreaming of their next machine and it was Chuck who showed them how to make ROMs work with his processor. That led to an extraordinary meeting where a merger deal between Apple and Commodore was on the table, however it never went through. Meanwhile Radio Shack asked for bidders to create a range of computers to sell in its stores. Commodore went to its offices to show a prototype but the Radio Shack turned it down.

Commodore announced the Personal Electronic Transactor (PET) in January 1977 and the race was on. All three companies appeared at computer fairs during 1977, but the Apple II was first to market in June. The slow process of assembly (five Apple IIs per day, compared to Commodore's 30 PETS) meant both were behind Radio Shack and its TRS-80 computer. The TRS-80, with the rival Zilog Z80 processor, received over 10,000 orders in the first six weeks and 5,500 completed machines by the end of the year. Apple's advertising in 1978 gave the impression that it was the fastest-selling – being first with the disk drive and 'killer app' VisiCalc turned Apple's fortunes around.

Some believe the name PET came from the 'Pet Rock' craze, others think it was the initials of one of Jack Tramiel's relatives. It was originally to be the Personal Electronic Computer, but disliking the acronym PEC Chuck chose the word 'Transactor' instead, some workers at Commodore called it 'Peddle's Ego Trip' instead. The '2001' suffix came from Commodore Japan, which selected a font similar to HAL's keyboard in the film 2001: A Space Odyssey for the keys. Starting a tradition: the graphic characters created by pressing combinations of keys were shown on each key.



Jim Orlando's PET Panic recreates classic arcade game Space Panic, where monsters must be trapped in holes in the platforms.

One of the earliest PET programmers was Leonard Tramiel, son of Jack Tramiel. He wrote a blackjack simulation shown at trade fairs, and a graphical version of Lunar Lander – a popular KIM-1 program. The rounded corners of the prototype PET were replaced by an angular metal case, manufactured by Commodore's filing cabinet division, and its keyboard used calculator-style keys. All the components were integrated in the original PET 2001 – the 69-key keyboard, cassette deck and monitor. Although it had no graphics capabilities, the built-in character set (known as PETSCII, since it enhanced the ASCII standard) was designed to create pictures on screen. Card symbols, lines, shapes, dots and blocks were included. There was no sound and no controller ports in the original PET, features that made the Apple-II better prepared for games.

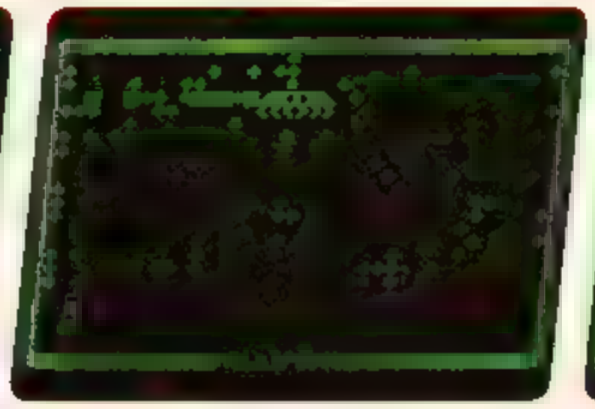
The 1977 trinity of computers ended up using Microsoft Basic. Commodore negotiated a shrewd deal, paying a fixed fee (some say as low as $10,000)

ESSENTIAL PET GAMES

COSMIC JAILBREAK

COMMODORE

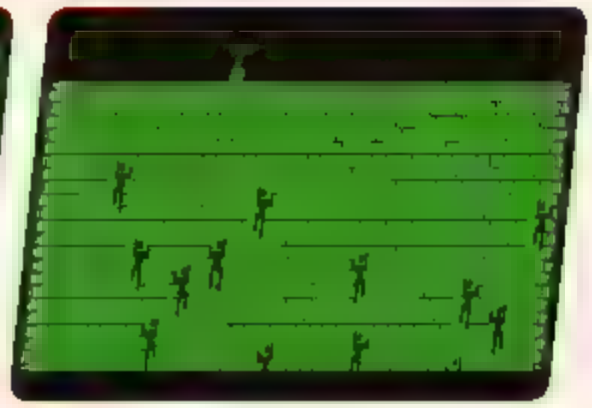
■ Based on the lesser-known Universal arcade game *Cosmic Guerilla*, the aliens pull bricks out of the jail to free the captives while you defend the jail from the bottom of the screen in a similar way to *Space Invaders*. *Cosmic Jailbreak* kept players captivated, and it was later ported to the VIC-20.



MILIPEDE

ON-LINE SYSTEMS

■ The classic arcade game *Millipede* (which is also known for being Atari's follow-up to *Centipede*) got this fast-moving unofficial conversion, written in machine code, back in 1981. On-Line Systems would go on to be known as Sierra On-Line, more famous for its adventure games.



SEIGE

MIKE SINGLETON/POSTERN

■ Ignore the spelling mistake and concentrate on throwing rocks down at the attackers scaling the castle walls. They will knock each other off with their arms and legs, but it is game over if one reaches the top. It also appears on VIC-20, C64, BBC Micro and Spectrum – additionally, it's inspiration for *Orc Attack*.

"I WROTE LORDS OF OTHER PET GAMES, BUT NONE WAS AS MEMORABLE AS AIR ATTACK"

Peter Calver

instead of royalties to use the language in the PET and modify it for future machines. Apple initially used Integer Basic, but it was unable to use floating point numbers. Apple licensed Microsoft Basic instead, with Bill Gates doubling the fee he got from Commodore. The TRS-80 started out with Tiny Basic, but decided to introduce Microsoft Basic in 1978 – at double the fee Apple had paid. Early commercial titles were written in BASIC, allowing them to be ported between machines. It would take a machine code monitor and assembler to make things easier for programmers.

"I bought a PET with 8K RAM for $800 in April 1978, at The Computer Store in Los Angeles," says Jay Balakrishnan, founder of Human Engineered Software. "The 4K model sold for $600 but I bought the 8K, paying $200 for an extra 4,096 bytes of RAM!" Jay's introduction to programming had been a university course using an IBM 360 mainframe. "There was little information about personal computers anywhere. During the final three years at university, I developed a passion for computer languages and learned programming in 20-plus languages. So by the time I got the PET, I had learned enough to start programming it from day one."

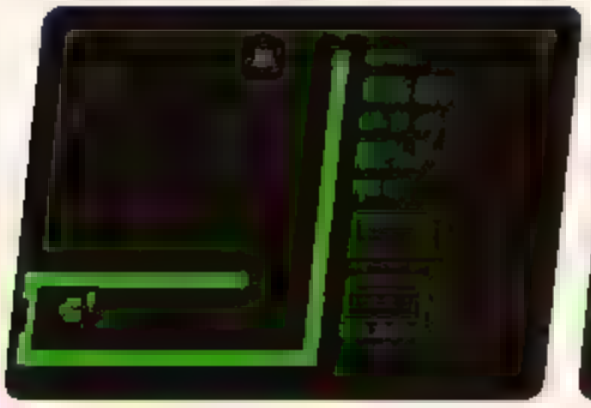
There was no PET 6502 assembler available, so Jay began work on one after he helped Tom Rugg write the first PET book, 32 BASIC Programs for the Commodore PET. HesBal (Basic Assembler Language) was inspired by an assembler from the IBM mainframe. "When HesBal neared completion, I asked Tom for his critique," Jay says. "He advised that HesBal was good enough to sell commercially. I spent a few more months to program HesEdit, which became the PET's first full-screen editor; HesBal was the world's first 6502 Assembler. I remembered a forgotten promise made to myself – that by 25, I should have my own company. On my 25th birthday, Human Engineered Software (HES) was founded. HES got started selling HesBal and HesEdit together for $16."

Jay used HesBal to create HesCom – software and hardware to control a communications cable linking the PET and a VIC-20. "[It was] mostly in BASIC, with a small core of fast/tight machine code written using HesBal and HesEdit. Thus HesCom was very fast and sold very well. Also, Terry Peterson used HesBal to create HesMon. HES sold HesMon (a programming/debugging tool for Commodore PET and VIC-20), which was used by numerous other programs." Jay sees the PET as important to his career. "The PET was instrumental in increasing my passion for personal computers and software. [It] set me firmly on the road to entrepreneurship. After starting HES, I founded four other startup companies over the next 13 years."

In early 1978, the PET reached the UK and impressed many eager users. Author Douglas Adams fondly remembered his first encounter, quoted in the posthumous collection The Salmon Of Doubt. "It was quite a large pyramid shape, with a screen at the top about the size of a chocolate bar. I prowled around it for a while, fascinated." Jeff Minter began programming games on the PET, first in BASIC and soon in machine code for added speed. Mike Singleton's first commercial games (Seige, Ski, and Space Ace) debuted on the PET. Mike also ran play-by-mail game Star Lord using a PET.

"I taught myself BASIC and then learned assembly language," says Peter Calver, founder of Supersoft. "Well, first I wrote an assembler in BASIC. It was hard to get hold of software so I decided I may as well write my own." Peter's earliest computing experience was a DEC mainframe. "In 1978 I saw the PET and other early computers (Apple II and TRS-80) in the Byte Shop in Ilford, and after some months of indecision decided on a PET," he says. They were all very expensive, but I found a dealer in Luton who offered a five per cent discount, bringing my 8K PET down from £695 to a mere £660. Two years earlier I'd bought a three-bedroomed house for £8,500, it was a lot of money for the time. Within less than a week of buying the PET I placed an advert in Personal Computer World, and Supersoft was born.

Invasion Orion had an in-depth manual describing the game mechanics. Image used with permission from PET Gamesave.



TEMPLE OF APSHAI

AUTOMATED SYSTEMS/EPYX

■ *Epyx used the Dungonquest engine for a series of role-playing games and the Temple Of Apshai trilogy became the most popular. Room descriptions included in the game's the manual added to the atmosphere. Later conversions for the VIC and C64 added fancier graphics, but the core gameplay remains the same.*

DUNNOS!

AKA WEATHER WAR, CURSOR

■ *Programmed by Kathy Higby and published by Cursor magazine, this fun title sees two wizards try to destroy each other's home with weather-based spells. Rain, Hail, Lightning and Tornado can all damage bricks. If the wind is blowing the right way. Random acts of nature add danger to the proceedings.*

▲ The simple manual for 3D Star Trek on the PET. Image used with permission from PET Emulator.

▲ Lawrence Tramiel, the son of Commodore's founder, programmed Lunar Lander and Blackjack for the machine.

Once I started advertising I was contacted by other authors who wanted me to publish theirs. Most of them were better programmers, so I was delighted."

"I wrote loads of other PET games, but none was as memorable as Air Attack," says Peter. What inspired it, a game seen as a forerunner of the Blitz/one-button genre? "In the summer of 1979 my brother told me about an arcade game he'd seen called Canyon Bomber, which had a plane flying over pillars of rock. Without seeing the game myself (in fact, I only saw it for the first time many years later), I started to program it on the PET based on my brother's description. When I got it working, probably a couple of hours later, I realised that it would be more interesting as a cityscape with skyscrapers." Unusually, the game was printed as a listing in a magazine, with a retail version on tape available from Supersoft (with colour overlays for the screen). Peter adds, "I was both annoyed and flattered when Commodore launched the VIC-20 with Blitz. I guess it was my fault for putting the listing in a magazine – then again, I got an enormous amount of publicity from Personal Computer World over the years, so it was probably worth it."

Just how important was the PET to Peter's career, though? "It was crucially important, because it

PET GAMEBASE

JONBOS AND MAD ARE PRESERVING COMMODORE PET GAMES, AND THEY TOOK THE TIME TO ANSWER SOME QUESTIONS

preserve this history?

JonBos: It is the origins of gaming. Programmers had to be passionate to make games on a PET, and astute.

Mad: The old hardware and magnetic media will not last forever. It also shows just how far computer technology and games have progressed since 1977, when programmers had to make every byte count.

preserved?

J: Most of the known ones as only a few are missing. There are also some in German and other languages that were not included as we could not figure them out.

M: The GameBase has 651 entries so far, but there are quite a few non-game programs included. But that's still a high number for a school/business computer.

Dungeons Of Death was the one and Mad found it, which was amazing.

M: *The Dragon's Eye* by Automated Simulations – Southern Software (Epyx). We have a C64 conversion, thanks to it being written in Commodore BASIC. It's hard to find even photographic proof of the original PET cassette. But the game I would most like to be made for PET is *Donkey Kong*. I love that game!

J: Finding the missing *Dungonquest* games would be the best.

M: If they know of any games not listed in the GameBase they used to play or own, please send us the file, cassette or any info they can remember so it can be included in any future version.

games of all time?

J: *The RPG Telengard*, and *Car Race* by Satoru Iwata (Nintendo CEO, 2002-2015). I think it was one of his first games and it is on a PET! The first game I ran on the emulator was *Scramble* which remains an all-time favourite of mine.

M: *Nightmare Park* by Bob Chappell, *Space Invaders* and *Night Race*. Just recently I was sent *Paladin* from Kevin Pickell (an ex-EA programmer). Shoot-'em-ups don't get any better in 16K.

homebrew games?

J: It shows the passion in making games and being clever about it. The modern games are breathtaking and show real talent.

Commodore PET

"WHEN I BOUGHT THE PET I KNEW I WAS LIKELY TO BE MADE REDUNDANT THE NEXT YEAR"

Peter Calver

It wasn't just a games machine or a machine for the home, so there was a market for a wider range of software. When I bought the PET I knew I was likely to be made redundant the following year, so it was a way of providing me with an alternative career option."

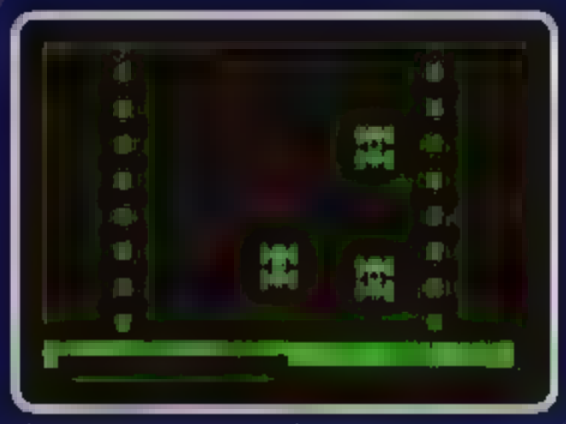
In the US, several companies started with a PET. Jim Connelley and Jon Freeman created strategy game Starfleet Orion on the PET and set up Automated Solutions to sell it; the company was eventually renamed Epyx. Its sequel Invasion Orion allowed the player to load in new scenarios and take on a AI opponent, and included a 'scenario builder' – one of the earliest game construction sets. Both coders were big Dungeons & Dragons fans, which led to the creation of the Dunjonquest engine. The Temple Of Apshai RPG trilogy ran on it, showing action from overhead.

Space Invaders for the Commodore PET came with instructions on how to build a sound add-on.

Board game manufacturers Avalon Hill formed a software division and released several games for the PET. As well as strategy games such as B-1 Nuclear Bomber and Midway Campaign, there was hit RPG Telengard. The late Daniel Lawrence created the original version on a mainframe and converted it to run on the PET, before porting the game to TRS-80 and Apple-II. It predates the Dunjonquest games, and shares many similarities to Rogue – however players could visit an inn to save their progress. Avalon Hill saw the game at a convention and signed the licence to distribute the game, coding the popular C64 port in-house. A tie-in with Sports Illustrated magazine also led to the creation of Baseball Strategy. Many of Avalon Hill's games featured multiple versions – often there would be TRS-80, Apple II and PET versions alongside each other.

One of the biggest sources of PET software was Cursor magazine, with 30 issues released between 1980 and 1982 by Codeworks. This monthly title came on cassette, featuring a mix of games, animations and utility programs. The Toronto PET User's Group (TPUG) is one of the oldest established computer clubs and put out another important magazine, The Transactor. In Japan, the PET User's Club counted Satoru Iwata among its members. His first known computer game was for the PET, in the shape of Car Race II.

The PET was well suited to adventure games, particularly the later models with an 80-column screen. It received conversions from the TRS-80 of the early Scott Adams adventures. Scott believes these were created by fans, from the BASIC listings published in BYTE magazine.



Satoru Iwata created Car Race II before becoming an intern at Commodore Japan and then joining HAL Laboratory.

With the Apple-II gaining momentum and the Atari 2600 dominating the early Eighties, PET games began to dry up.

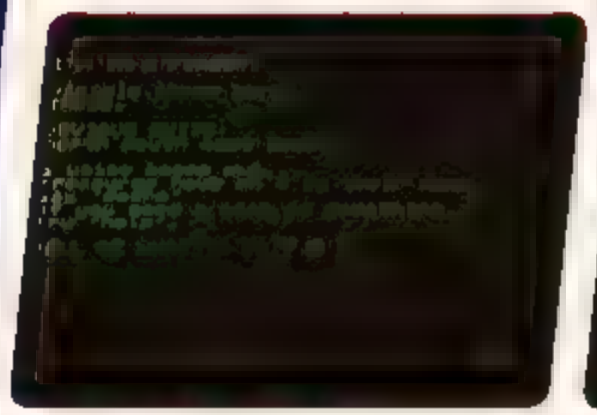
Commodore stopped producing the various PET models in 1986, but the machine has lived on in emulation. The PET GameBase has gathered together and preserved many games. There's also a lively homebrew scene.

"We owned a PET about the same time we had a Commodore 64. Most of my PET activities came from spending lunch hours and after school time in the computer room at junior high," says Mike Johnson, known as Mr NOP. "I wanted to create something on a platform that was pretty much unsupported." Mike has programmed Lady Bug (based on the Universal arcade game, with its maze of turning gates) and Oil's Well (the Sierra On-Line game, based on arcade game Anteater).

"PET owners are starved for software. Most of the older software and even the newer is written in BASIC. I wanted to create something enjoyable to play in pure machine language." Mike also ported the PET game Slime by Jim Summers to the C64.

Martijn Wenting of Revival Studios codes for both the VIC-20 and the PET, but what draws him to the latter? "I like the challenge," he says. "I'm using emulators

QUESTING ON THE PET



ADVENTURELAND

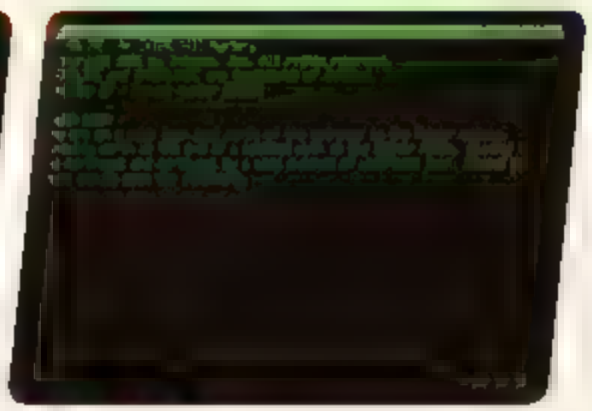
SCOTT ADAMS

Several of the classic Adventure International titles were ported from the TRS-80 to the PET, and would later be converted under licence by Commodore for the VIC-20. This debut adventure featured 13 treasures to find and a score counter, but no other characters to interact with.

[illegible] CAVE

JIM BUTTERFIELD

The first ever adventure game appeared on mainframe computers, based on Will Crowther's real-life caving experiences and enhanced by his friend Don Woods. It was converted to the PET by renowned Commodore programming expert Jim Butterfield, although it is an abridged version with fewer locations.



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INFOCOM

The Z-Machine allowed Infocom to bring its adventures to many different machines back in the Eighties. Other programmers have now ported it to new systems, including the PET. This game sees the player as a detective investigating the murder of a rich man, interrogating suspects and finding clues.

BEST IN SHOW

HOW THE COMMODORE PET SHAPED UP AGAINST ITS RIVALS AT THE TIME

	COMMODORE PET 2001	APPLE-II	RADIO SHACK TRS-80
PROCESSOR	6502 @ 1 MHz	6502 @ 1 MHz	Z80 @ 1.77 MHz
MEMORY	4K or 8K (expandable to 32K)	4K (expandable to 64K)	4K (expandable to 48K)
COLOURS	Monochrome	16	Monochrome
GRAPHICS	Built-in graphics characters (40x25, effectively 160x100 pixels)	Lo-res 40x48 pixels (16 colours) / hi-res 280x192 pixels (six colours)	128x48 pixels
SOUND	None (beeper can be added)	Beeper	Beeper
CONTROL PORTS	None	Internal (for paddles)	None
LAUNCH PRICE	$595 with built-in monitor and tape deck ($2,600 in 2017 prices)	$1298 without monitor or tape deck ($5,235 in 2017 prices)	$600 with black-and-white display, tape deck extra ($2,420 in 2017 prices)
LIFETIME SALES (ACROSS ALL MODELS)	600,000	5 million	200,000

throughout the development. However I recommend any developer to also test on the real hardware."

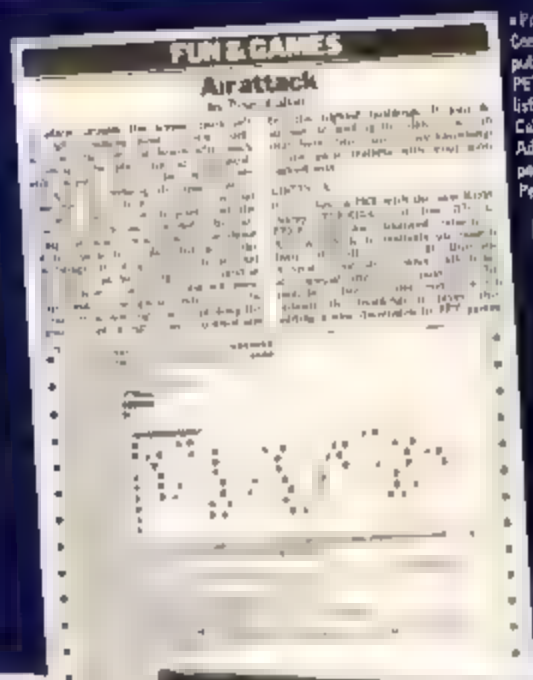
Martijn has created seven PET games, transferring the gameplay from his other homebrew titles – although Boxing Champ started life on the PET before being ported to the ZX81. "I like using the PETSCII set as I think it gives the games that PET charm and style. I think there is no limit to what can be achieved if you are creative – for example, my game Rush uses parallax-scrolling backgrounds." He has more games planned: "I'm looking to convert Videopac game Cavity to the system and I have a prototype for a working CHIP8 emulator, which will allow for a number of CHIP8 games and demos to run on the trusty old PET."

Jason Kelk coded Blok Copy for the PET. "There are bits and pieces for a few more games lurking among my files in various states, including a proof-of-concept hardware scroll that relies on later models of PET," he says. The original Blok Copy used coloured tiles, so how well did it transfer? "I talked Doug 'Bizzmo' Roberts into spending some time making distinct tiles for the PET. It wasn't easy getting something we were both happy with, but the final result works better than my own first attempts!" We were keen to hear what drew Jason to the PET. "The hardware restrictions looked like an interesting challenge and having a 6502 processor gave me a head start," he replies.

Mike has one final thought. "I know that programming is about enjoyment and having fun, but to me it's like composing a song nobody will hear or writing a book nobody will read – there needs to be an audience. Vinyl records and cassette tapes are making a comeback, so the PET could become popular again."

The PET may not have had the memorable games of its rivals or the Atari 2600 console, but it still has a dedicated community enjoying the challenge of working within the machine's limitations.

Thanks to our interviewees for taking part and Kieran Hawken for his help.



■ Personal Computer World published the PET BASIC listing of Peter Calver's Air Attack. Advert used with permission from Peter Calver.

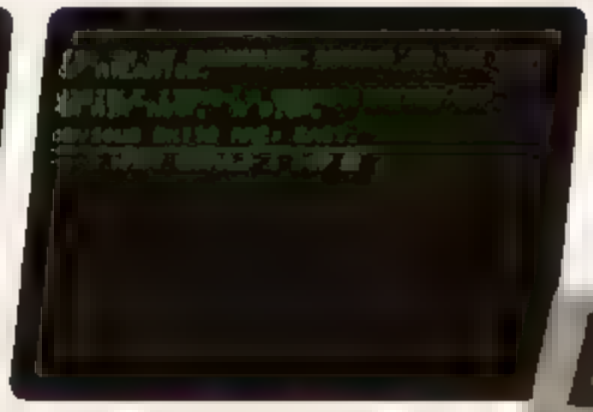
Credit: Photograph by Rama, Wikimedia Commons, CC-BY-SA-2.0-FR

COMMODORE'S MACHINE PLAYED HOST TO A NUMBER OF GOOD ADVENTURE GAMES

DOG STAR ADVENTURE

LANCE MICKLUS

■ *The arrival of Star Wars in 1977 influenced an unquantifiable bunch of programmers. Lance Micklus wrote Dog Star Adventure for the TRS-80, changing character names to avoid copyright. This later PET version restored the original names and added a PETSCII title picture of Darth Vader*



VOYAGE TO ATLANTIS

JOHN O'HARE/MAD HATTER

■ *Greg Hassett created several early text adventures, with John O'Hare the programmer responsible for porting them to the PET. Atlantis charged players with relocating a bunch of treasure from the titular lost city into a submarine*

CHAS

INSTRUCTIONS

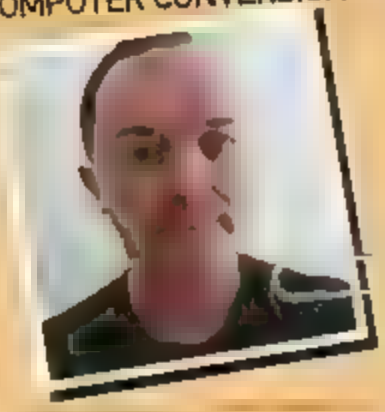
BACK WHEN COPS AND COOL CARS WERE ALL THE RAGE ON TV, TAITO GAVE US THE OPPORTUNITY TO LIVE OUT OUR FANTASIES OF TAKING PART IN A HIGH-SPEED PURSUIT. NICK THORPE HAS BEEN DISPATCHED TO INVESTIGATE THIS CLASSIC COIN-OP...

E.H.Q.

CHASE H.Q.

Q&A: MARK EDWARDS

WE CHASE DOWN THE MAN BEHIND THE GRAPHICS OF THE 16-BIT COMPUTER CONVERSIONS



I loved it. At the time there were many arcade racing games but this had a unique twist. It also held a subtle (old-school) TV style look to the game and this was something I was brainwashed with as a kid. My dad was also in the police force, so maybe this helped!

Our MD, Tony Kavanagh, had links with Ocean, especially Gary Bracey at the time. Krisalis had a name and a knack for arcade conversions with the likes of *Toobin*, *Scramble Spirits*, *Continental Circus* etc

I did indeed, and no I didn't know this... I really struggled with the lips as far as I can remember

As with all conversions, copyright logos and style are of the utmost importance I remember struggling to get the loading screen right and this created many a laugh with my fellow artists.

Whenever I think of *Chase HQ*, always think of the struggle I had drawing those lips!, I really enjoyed those times, much more so than now. Krisalis was a great company to work for

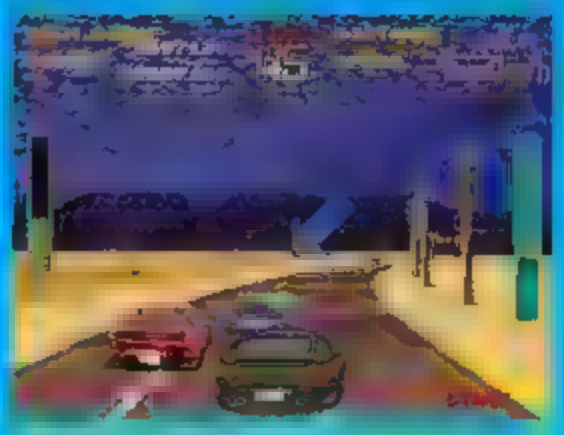
Very little feel. All feedback came back via Ocean. Back in those days game development was easier in many ways We had little feedback compared to what I'm working on now – *Dead Island 2*..

I think so, it's a fair result given the time we had to extract graphics from the arcade version and convert to the many formats

From what I remember we had around six months to convert it to all formats. This was quite a feat for all projects we were handed and something I'm proud of with such a small development team.

I'm pretty shocked to see it now after going though 20+ years of game advancement At the time it had charisma and a certain look, as mentioned. It's lovely to think some old folk still love this game and [it's] something I'll always treasure

Back in those days there was a lot of competition. Fortunately, we had a unique advantage with an arcade conversion. A game that was thoroughly tested and embedded in the Nineties kids. How could it ever fail, given a good conversion!



CONVERSION CAPERS

ZX SPECTRUM

1989

■ This is renowned as one of the very best games to appear on the Speccy, and rightly so. The presentation is outstanding, even squeezing in voice clips, and the gameplay is fast and smooth. You really couldn't ask for a closer conversion of Sir Clive's pride and joy.

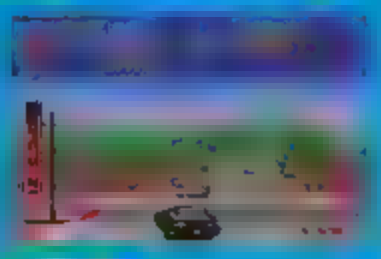
AMSTRAD CPC 1989

■ It's not as quick as the Spectrum version, but the difference is no huge deal, and in every other respect this is another amazing conversion. It packs in everything else that makes that version great, and the colour graphics give it a edge over its 8-bit rivals.

■ The people behind *Chase HQ* for the C64 were actually in *Chase HQ*, you'd be ramming them off the road for the murder of a classic. Not only is it visually underwhelming, it's so slow that your crime-fighting efforts would be better carried out on foot.

MSX 1989

■ This looks like the Spectrum version, but don't be fooled – it's slower and doesn't include much of the brilliant presentation. It's better than the C64 version, but that's not saying a lot. It's also quite a rarity, having been released in limited parts of Europe.

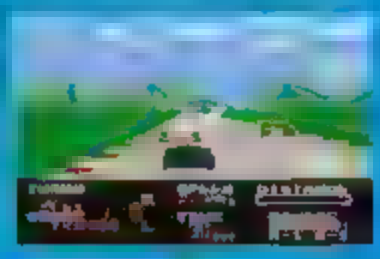


AMIGA 1989

■ There's little to differentiate between the Atari ST and Amiga conversions of *Chase HQ*, which means you're good with either. To be honest, though, it's made to look a bit poor by *Lotus Turbo Challenge* and the driving sections in *Batman: The Movie*.

ATARI ST 1989

■ This conversion was developed by Tecmo, the same company behind the C64 version. The game fares better on the ST – it looks nice in static shots, but it does run slowly and the handling is poor. There are better conversions out there, so play those instead.

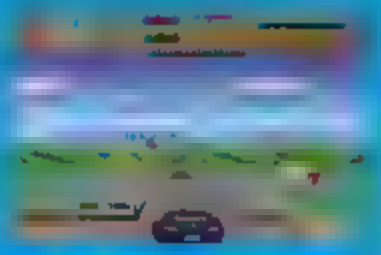


FAMICOM 1989

■ This is an attractive conversion for the 8-bit console, complete with speech and support for the analogue *Arkanoid* controller. It also does a step beyond the arcade game by allowing you to trade your points for new car parts between stages.

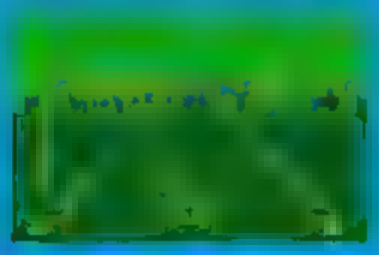
MASTER SYSTEM 1989

■ This is a pretty good conversion. It's based off of the Famicom version, and includes the same upgrade options. It's fast and attractive, but the scenery lacks variety due to the flat roads and total lack of tunnels. The version is exclusive to PAL regions.



PC ENGINE 1990

■ This is a fast and nice-looking conversion featuring good music, nice visuals and most of the arcade game's tunnels. Most of the scenery seem a bit severe and the engine noise is rather annoying, but this is definitely one of the better versions out there.

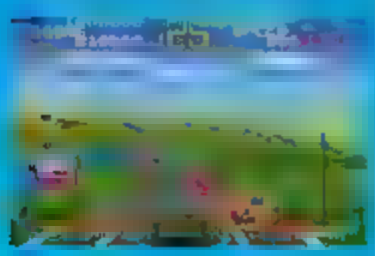


GAME BOY 1990

■ The game doesn't look too bad in monochrome, but *Chase HQ* on the Game Boy is poor. It doesn't handle very well, and in a driving game that's a ruinous problem. *Super Chase HQ* is a far better take on the same idea for this format, so play that.

GAME GEAR 1991

■ The *Chase HQ* experience on Sega's handheld is almost exactly the same as on the Master System, to the point that it runs in the hardware's Master System graphics mode. The only difference is a redrawn HUD that looks better on the small screen.



SHARP X68000 1991

■ This Japanese computer is renowned for some excellent conversions, but *Chase HQ* isn't one of them. Object movement is jerky and the scenery has been rendered horribly blurred, with no off-road sections or forks in the road. The music is pretty good, though.

SATURN 1995

■ You'd expect an arcade-perfect conversion here, but it's different to the coin-op original, with redrawn sprites and differences in visual effects. It's still the closest home version – just don't expect the near-identical closeness of a Sega Ages conversion.

FM TOWNS

1991

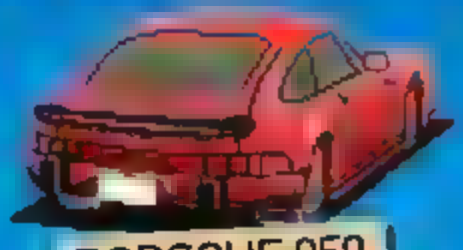
■ Here's an astonishing conversion, which is very close to the original. The view is a bit narrow and the scaling isn't as smooth, but in all other respects this is utterly superb. However the hardware trickery used to run this causes some persistent colour glitches.

CHASE H.Q.

PIXEL PERFECT

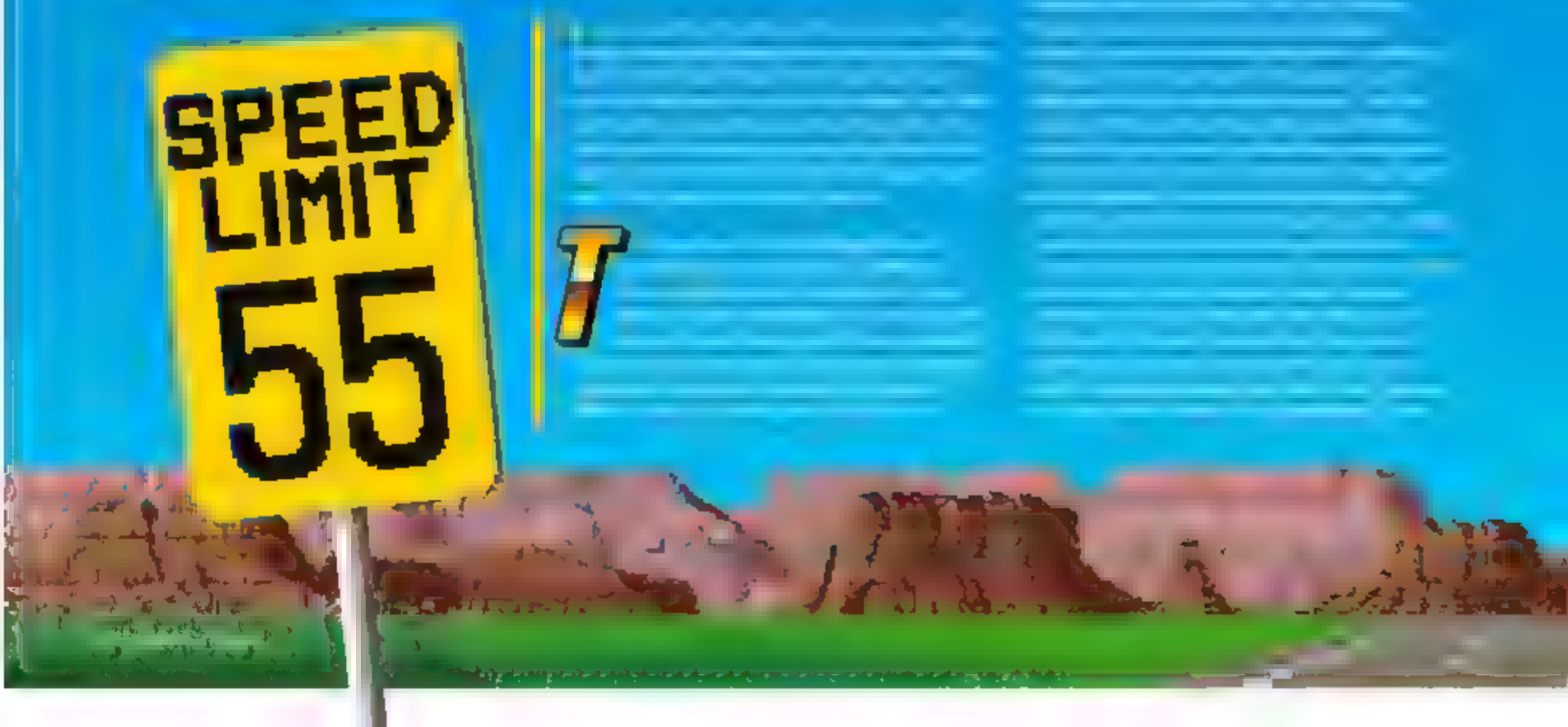
CALLING ALL CARS... REPORT TO THE DOUBLE-PAGE SPREAD IMMEDIATELY

PORSCHE 928


PORSCHE 959

FORD F-150

FERRARI 288 GTO



At the time there were many arcade racing games, but this had a unique twist

Q&A: BILL HARBISON

WE SPEAK TO THE GRAPHICS ARTIST BEHIND SPECTRUM AND AMSTRAD VERSIONS OF CHASE HQ

What made *Chase HQ* such a good game to play?

It was a fast, slick arcade game which wasn't just about driving towards a goal. It had an extra layer on top which made it all the more playable. Without the addition of catching the criminals by bashing their car off the road *Chase HQ* would have been just another *Out Run* clone. So when myself and Jon O'Brien were informed that we would have to try and cram this beast into a ZX Spectrum we didn't take the job lightly. We wanted to do the best job we could, our job was to outrun *Out Run*!

Were you aware of the poor reception that the *Out Run* conversions had received and did you want to improve on that with *Chase HQ*?

Before I got into the industry I remember getting a cover tape with a magazine containing a playable demo of *Out Run*. It was crushingly disappointing! The car was nicely drawn and some of the other objects were fine but it wasn't particularly playable. It was slow and the roads were badly defined. There had already been superior racing games, like *Enduro Racer*, on the market and even further back there was *Full Throttle*. I think I probably played it just the once before taping over the cassette with something else. It seemed to me at the time that it wouldn't receive favourable reviews, although I now understand that it has its fans.

A few months before starting on *Chase HQ* I had worked on a racing game that was superior to *Out Run*. That was *WEC Le Mans*. If we managed to make *Chase HQ* as good as that we would have been onto a winner.

I was working on *WEC Le Mans* which was coded by Sentient Software with Ocean's Mike Lamb. I was at a loose end after finishing by previous game and was brought on board to help with the graphics. While this was happening, Gary had employed Jon O'Brien who was working with Mike on the game engine and when *WEC Le Mans* was finished I moved over to *Chase HQ* full time.

We were told about the game but I hadn't seen it before and before long the cabinet arrived at the office and caused quite a stir. I used to sit in the seat with an A4 pad and sketch the frames for the cars and the other graphics in the game. Within a couple of weeks the cabinet was taken away and we were left with the circuit board and steering wheel hooked up to an old TV. At least we had access to the game and we didn't have to pay a penny to play it.

What differences where there between the 64k and 128k versions?

We managed to squeeze just about all the game into the ZX Spectrum with a few additional details like the character portraits and the ending. The portraits were mostly based on Ocean employees like Steve Thompson, Martin McDonald and Kane Valentine, while Nancy was based on Dallas Cowboys cheerleader Dorie Braddy. The ending was renditions of publicity shots from the soon to be released, *Lethal Weapon 2*. The only additions to the 128k version were the superior music and digitised speech.

Because of the added colour we feel the Amstrad version is the best, is this something you'd agree with?

The extra colours make the game graphics look much brighter but the double-width pixels meant that some detail was lost on the cars and character portraits. It also seems like the Amstrad version is slightly faster, too.

Was there anything about the conversions that you weren't happy with?

I would improve be the enemy intro screen with the radio message. It's a little basic compared to the arcade version.

I think we managed to capture the spirit of the arcade and make it fast and smooth – and bouncing title screen. Little touches like that show that we wanted to do the best job that we could.

CHASE H.Q.

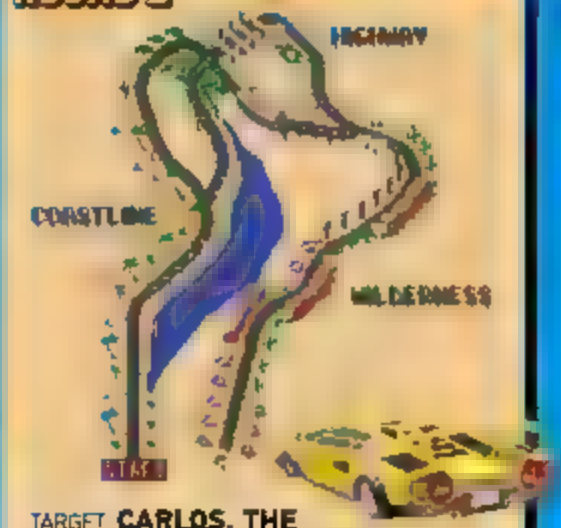
CASE FILES

ROUND 1

TARGET **RALPH, THE IDAHO SLASHER**

■ If this chase is actually taking place in Idaho, it can only possibly be Boise – it's not exactly a state known for its large urban communities, and this stage will take you from a lovely garden avenue straight into the city streets. Going right at the junction will take you off-road, slamming through construction barriers and shrubbery before heading out onto a cloudy plain. That's where you'll encounter the murderous Ralph.

ROUND 2



TARGET **CARLOS, THE NEW YORK ARMED ROBBER**

■ Carlos has wandered far from his home in the Big Apple, as the sunny coastline here suggests California. You'll get help from the helicopter in this stage, which hovers overhead before you reach the junction, where you can take the tunnel onto the highway or the ramp. You'll most likely catch up with our esteemed armed robber in the desert, where he's making a break for it in a flashy yellow car. Way to draw attention to yourself, dirtbag!

ROUND 3

TARGET **CHICAGO PUSHERS**

■ This place looks a bit like Chicago, so it seems we've caught our dealers pretty soon in their bid for freedom. You'll start off late in the afternoon, and it's quite a chase because when you've finally gone off-road via the left fork and caught up to the bad guys, the sun is setting and the sky is a beautiful shade of orange. Walter White should never have moved to Chicago!

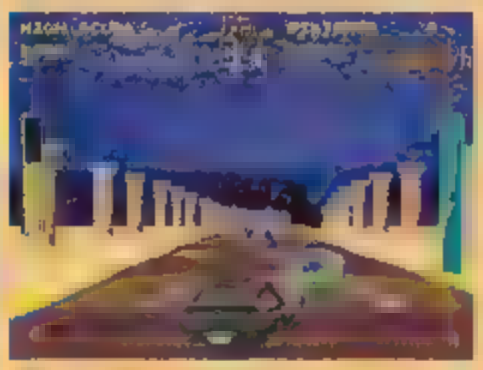
> "It was a fast, slick arcade game which wasn't just about driving towards a goal"
>
> Bill Harbison

ROUND 4

TARGET **LA KIDNAPPER**

WANTED FOR: KIDNAPPING

■ It's already early evening as you race out of the slums, and this jerk is in a powerful car so don't expect to catch him before nightfall. You'll have help from the chopper again here, and if you head up the ramp on the right you'll take the freeway out to the desert. For some reason, it's fine to ram into a kidnapper's boat, despite the likely presence of the kidnapping victim, so just go for it.



ROUND 5

TARGET **EASTERN BLOC SPY**

DESCRIPTION

■ You don't get a map for this early morning chase, nor do you know what the spy's car looks like. Ultimately, that means that he's doing a pretty good job as a spy. Thankfully, you're able to identify him in a bright red car, rather than the standard issue Lada Riva or Trabant that his comrades back home have to put up with.

tremendously common today, the gameplay has been incorporated into a variety of other racers. You can see traces of Chase HQ in the likes of Driver, which has a Pursuit Mode, some Grand

template and adds more vehicles plus some straight shooting sections.

So while Chase HQ series is currently in its

ZX SPECTRUM

35 YEARS 35 GAMES

MORE THAN 10,000 GAMES HAVE BEEN RELEASED FOR THE ZX SPECTRUM AND THAT NUMBER GROWS EVERY SINGLE YEAR. AS IT CELEBRATES ITS 35TH ANNIVERSARY, MARTYN CARROLL SELECTS A KEY TITLE FROM EACH YEAR, FROM 1982 TO TODAY, HIGHLIGHTING THE SHEER DURABILITY OF THIS DIMINUTIVE MICRO

1982 THE HOBBIT

DEVELOPER: BEAM SOFTWARE GENRE: TEXT ADVENTURE

Were it not for *The Hobbit* the Spectrum's first year would have been forgettable as far as gaming goes. The reason for the lack of quality software early on is clear: the Spectrum officially launched in April 1982, yet Sinclair struggled to meet demand with some waiting for months for their machines to arrive. These delays meant that there wasn't a great deal of games software available this year, decent or otherwise. Quick arcade clones were the order of the day, and it was obvious that many were hastily updated versions of existing ZX81 releases. Sinclair's own label published some early hits like *Space Raiders* and *Hungry Horace* but they were simple, fleeting affairs. This begs the question: how did Philip Mitchell and Veronika Megler, authors of *The Hobbit* text adventure, create such a sophisticated title and have it ready so soon after the Spectrum's launch?

The pair actually began developing the game on the Tandy TRS-80, but when Beam Software witnessed the clamour for the Spectrum it shifted the development over. An added benefit of the move was that it allowed for colour location graphics to accompany the text descriptions. These images will evoke memories for many gamers, as they were slowly sketched on screen and then painstakingly coloured in, line by line. But for fans of interactive fiction, behind the crude graphics lay an engrossing adventure. *The Hobbit* was ahead of its time, introducing an intelligent parser, non-playable characters and non-linear progression years before it became commonplace.

Tolkien, who famously wrote his tomes by hand, would have been baffled by this game, for sure. Yet the idea of readers being able to explore his world at will would have surely satisfied him.

ON SPEC
VERONIKA MEGLER

The Spectrum developer talks Tolkien

On the Spectrum

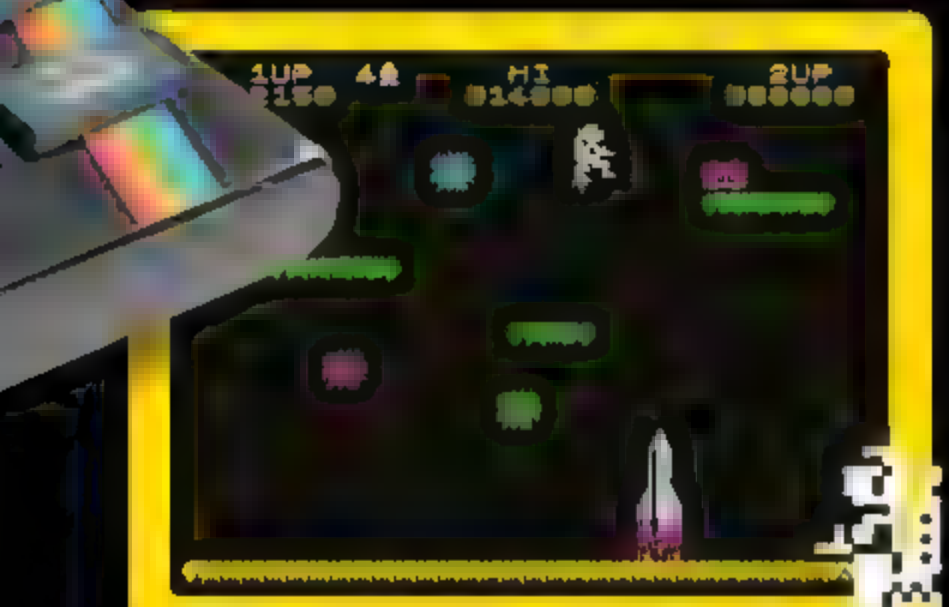
[illegible] were good game-playing machines. We did all our development on the TRS-80 which was [illegible]

On developing *The Hobbit*

[illegible] part a leap forwards. But we got so caught up in the building of the game we didn't think about that much. We talked more about design and the challenges of debugging something so complex. The 'inglish' environment was more structured and testable, while the randomness of the NPCs and the game engine made testing that a real challenge.

On the impact of *The Hobbit*

I'm still astonished and humbled when I hear the impact *The Hobbit* had on peoples' lives, and on other gamers and developers who came after. Playing the game had far more impact on their lives than developing the game had on mine.



1983 JETPAC

DEVELOPER: ULTIMATE GENRE: SHOOT 'EM-UP

'From famine to feast': that sums up 1983 basically. The Spectrum was suddenly everywhere, with Sinclair reportedly selling half a million machines by August 1983. The userbase exploded and so did the number of amazing games available. Sandy White's *Ant Attack* pioneered the isometric adventure while Matthew Smith's *Manic Miner* redefined the platform game. And then a brand-new outfit from the Midlands went and produced the purest arcade experience yet on the Spectrum.

Jetpac was the debut offering from Ultimate Play The Game, the software house that would dominate the Spectrum's early years. There were many single-screen shooters around at the time, but this was just so polished, so professional, that it could have come straight out of the arcades. The objective of warily refuelling your space rocket while blasting aliens was simple yet compulsive. Yes, colours clashed and sprites flickered but there's arguably never been a better example of a pick-up-and-play game for the Spectrum – and it still holds up today. *Jetpac* was just the beginning for Ultimate: *Pssst*, *Cookie*, *Tranz Am* and *Jetpac* sequel *Lunar Jetman* all arrived before the year was out.

1984 THE LORDS OF MIDNIGHT

DEVELOPER: MIKE SINGLETON GENRE: STRATEGY ADVENTURE

Ultimate carried on where it had left off, releasing several more Spectrum classics this year including *Atic Atac*, *Sabre Wulf* and the groundbreaking *Knight Lore*. Any one of these was a contender for 1984's best game, as were Graftgold's *Avalon* and Microsphere's *Skool Daze*, but there's one title that comes out on top for being both technically brilliant and brilliantly fun.

The Lords Of Midnight, developed by Mike Singleton and published by Beyond, was so advanced that it made *The Hobbit* look like a type-in listing. Featuring 4,000 locations (all depicted visually, thanks to Mike's inventive 'Landscaping' system), dozens of playable characters and multiple ways of seizing victory, this sprawling strategy adventure shouldn't really have been possible on the Spectrum with its limited hardware and meagre 48K memory. But Mike brought the land of Midnight to life and everyone who trekked, battled, cowered and bluffed their way across its icy wastes will know that *The Lords Of Midnight* was simply peerless on release. Even the follow-up, 1985's *Doomdark's Revenge*, struggled to top the seminal original.

1985 CHAOS

DEVELOPER: JULIAN GOLLOP GENRE: TURN-BASED COMBAT

With each passing year more and more amazing games were made available for the Spectrum. 1985 saw the release of many fan favourites including *Fairlight*, *Saboteur*, *Cyclone*, *Highway Encounter* and *Tau Ceti*. This was also the year that Acornsoft's all-conquering *Elite* finally docked onto the Spectrum and easily justified the hype surrounding it.

In comparison, *Chaos* was not a game that people were waiting for. Creator Julian Gollop was hardly known and publisher Games Workshop was better known as a developer of board games than computer games. The game's appearance certainly didn't help sell it. In the press, thanks to the sparse black backgrounds and tiny, twitching sprites. But if there was ever a game where its design triumphed over graphics then *Chaos* was it. Up to eight warring wizards battled it out on the 'Plane Of Limbo', taking turns to unleash their spells and be the last sorcerer standing. The spells were randomly apportioned, so every game played out differently.

Julian had been developing the game for years, initially as a board game played between friends, so the computer version was impressively deep and perfectly balanced. And when eight human players were locked in battle, hurling gold dragons and gooey blobs around the place, it was, well, chaos.

The game might not have been a hit when first released but over the years it has attracted a devoted following. Many will have discovered it retrospectively thanks to *Your Sinclair* magazine, which included it on two separate cover tapes: in 1990 and 1993. The magazine billed it as a "true classic" and it's impossible to argue with that.

ON SPEC
JULIAN GOLLOP

The legendary designer talks about Chaos

On creating *Chaos* as a computer game

I was able to add an extraordinary game mechanic – the illusion system. The idea was that you could summon a creature as an illusion and they would behave as normal but they could be 'disbelieved' by any other player. I still saw *Chaos* as primarily a multiplayer game, but the AI proved to be pretty cool – something you can't really do for a board game. Many players loved to play a co-op game against the AI wizards before turning on each other.

On the Spectrum

The Speccy was absolutely essential for my career. For strategy games it was great because you had a whopping 48K available and it was cheaper than the alternatives. Not only was I able to persuade my parents to buy one but I was able to make fairly sophisticated games for it. And the ZX Microdrives never let me down!

1986 TURBO ESPRIT

DEVELOPER: DURELL SOFTWARE GENRE: DRIVING

In this year Sinclair launched the Spectrum 128, a new model that was supposed to usher in the next generation of Speccy games. That didn't happen, of course, as most publishers were happy to continue releasing standard 48K games with some token 128 improvements (Rainbird's *Starglider* and Mastertronic's *Knight Tyme* were two early exceptions). It didn't matter too much as the flow of amazing 48K games continued with gems like *The Great Escape*, *The Trap Door* and *Quazatron*.

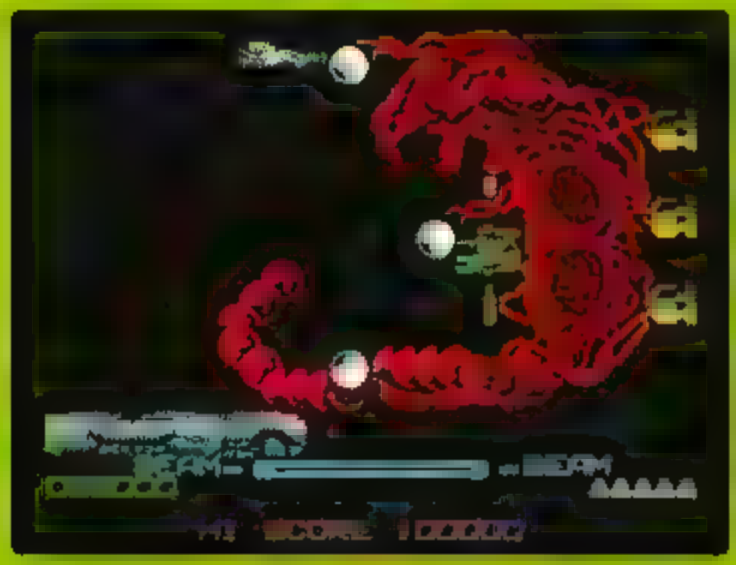
Turbo Esprit from programmer Mike Richardson was another title that showcased what could be achieved on the bog-standard Speccy. It was essentially an 8-bit prototype of *Driver* from Reflections, presenting 'living' 3D cities which you could freely navigate. The objective was to catch drug runners but for most players there was joy in simply driving around, obeying traffic lights, zebra crossings, junctions and the general rules of the road – or more likely, flouting them. Even now, we feel desperately sorry for those little guys on their ladders, just going about their work.

1987 HEAD OVER HEELS

DEVELOPER: OCEAN SOFTWARE GENRE: ISOMETRIC ADVENTURE

Isometric adventures were hugely popular on the Spectrum. Ultimate showed with *Knight Lore* and *Alien 8* that the Spectrum's processor had the grunt to make isometric presentation work well, and then pretty much everyone else followed its lead. Games like *Sweevo's World*, *Movie* and *Batman* not only optimised the technique but also added their own unique traits and quirks. This progression peaked with *Head Over Heels*.

Jon Ritman and Bernie Drummond's follow-up to their *Batman* game may have lacked a popular licence but it was strong enough to succeed on reputation alone. Its key feature was to introduce two playable characters with their own strengths and weaknesses, which you could flick between. And when reunited (which was the game's first task), you could join them up and take on the evil Blacktooth Empire together. *Head Over Heels* was cute, clever devious and delightful. The graphics and animation were excellent and so was the sound (on the 128K version at least). All in all, this was an instant Spectrum classic and yet another hit for Ocean which was finding form after a few uneven years.



1988 R-TYPE

DEVELOPER: SOFTWARE STUDIOS **GENRE:** SHOOT 'EM UP

By this point the Spectrum market was becoming increasingly dominated by coin-op conversions. That was not necessarily a bad thing, as there had been genuinely excellent attempts (*Game Over* from Dinamic, *Renegade* from Imagine, and *Bubble Bobble* from Firebird were just three). Yet the whole debate surrounding US Gold's hopelessly optimistic version of *Out Run* did leave a bit of a bad taste behind.

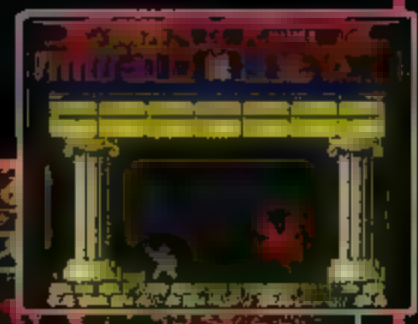
If the Spectrum version of *R-Type*, how could anyone conceivably take the hottest shooter in the arcades, with its wacky array of weapons and screen-filling bosses, and squeeze it onto the Speccy with any degree of accuracy? Programmer Software Studios somehow managed it, delivering not only the number one coin-op conversion for the Spectrum but also one of the best games for the machine period. Some suspect witchcraft was involved in pushing the Spectrum to its absolute limits, but by reading the story behind *R-Type* in Bob's free PDF book it's all there for you to discover that it was a meticulous coder who channelled enough problem after problem and simply wouldn't settle for second best. An absolutely sublime conversion.

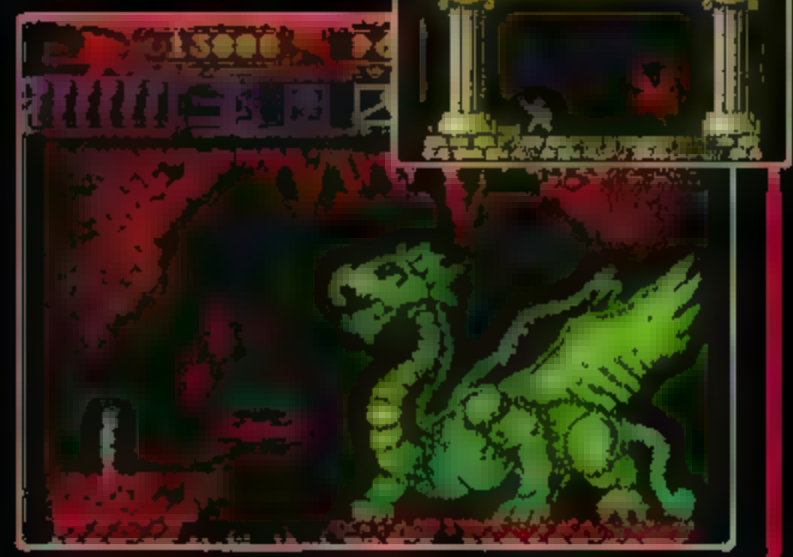
1989 MYTH

DEVELOPER: CONCEPT ANIMATIONS **GENRE:** ADVENTURE

This was the year of *Robocop*. Ocean's blockbuster film tie-in was released at the end of 1988 and dominated the sales charts throughout 1989. With such emphasis of licensed properties games, like *Myth*, were easy to overlook. But not here, not now.

Myth was basically a traditional arcade adventure dressed up to the nines. You played a young boy travelling through time, solving clever puzzles in order to defeat demons and dragons and other mythical beasts. Each stage was almost like a spectacle that kept unfolding, and the whole thing was enlivened by the most fantastic graphics and animation (the driving rain and lightning strikes on the Viking stage were like something from a 16-bit title). The controls were a bit iffy (pressing down to jump?), and the shoot-'em-up finale felt bolted on, but overall *Myth* was an experience that felt like it had been crafted with great care and attention. It was the kind of game you'd imagine Ultimate would be making had it not quit the Spectrum scene.





1990 RAINBOW ISLANDS

DEVELOPER: GRAFTGOLD
GENRE: PLATFORMER

Colour clash was the Spectrum problem that never went away and one of the most common ways of avoiding it was to opt for a two-colour display. This resulted in too many monochrome titles that didn't clash but looked plain drab. Clearly this wasn't an option for *Rainbow Islands*, as doing it in monochrome would have caused an outcry (and possibly contravened the UK's Trade Descriptions Act in some way). After all, this was a conversion of a coin-op that was almost incandescent.

The Spectrum version was handled by Graftgold which made the most of the Spectrum's vibrant palette, throwing reds, yellows, cyans and magentas all over the place. The criminally overlooked 'bright' variants were also splashed about. Obviously, the character sprites and the rainbows themselves couldn't be multi-coloured on the Spectrum, but otherwise this was a bright and beautiful game. It played really well, too, and featured all of the content from the coin-op (bar the three secret islands, as per most of the home conversions). The game also performed admirably, barely slowing down even when the screen was really busy, and was enhanced for 128K machines with AY tunes and effects [illegible].

Rainbow Islands was published by Ocean which was enjoying another strong year, particularly with its coin-op conversions. In addition to *Rainbow Islands* it also published excellent versions of *Midnight Resistance* by Special FX and *Pang* by Arc Developments. Towards the end of the year Ocean announced that it would focus on 128K-only games going forward. Would this decision spell the end for the trusty 48K Spectrum?

ON SPEC
STEVE TURNER

On developing *Rainbow Islands* at Graftgold

[illegible]

1991 SPELLBOUND DIZZY

DEVELOPER: BIG RED SOFTWARE GENRE: ADVENTURE

Owners of 48K models needn't have worried about Ocean's decision to overlook them as most publishers continued to support the original machine. This was particularly true of the budget publishers who began to pick up the slack as the number of full-price releases noticeably declined. Codemasters was the king of budget publishers and *Dizzy* was its prince. This, the fifth in the main *Dizzy* series, was his biggest adventure yet with 105 screens in total (the original *Dizzy* had 52 screens in comparison). It was also one of the best in the series, featuring some strong puzzles and fun sequences including a mine cart ride. It was best played on a 128K machine as it included AY music and extra character animations, but the whole adventure run perfectly on the standard 48K iteration of the Speccy.

This year also saw a couple of high-profile 16-bit releases ported down to the Spectrum in *Lemmings* and *North & South*. Both were decent versions and showed that the Speccy was still a viable platform for the latest hits.

1992 TURBO THE TORTOISE

DEVELOPER: VISUAL IMPACT GENRE: PLATFORMER

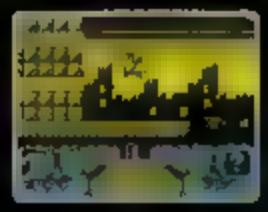
Another year where budget titles outshone full-price releases. Ocean's *Space Gun* and *The Addams Family* were pretty solid, as was US Gold's *Indiana Jones And The Fate of Atlantis*, but the big publishers were clearly focusing on the 16-bit market now. Codemasters was still reliably cranking out budget games like *Captain Dynamo* and *Wild West Seymour*, yet it was this brilliant little platformer from Hi-Tec Software that stood out.

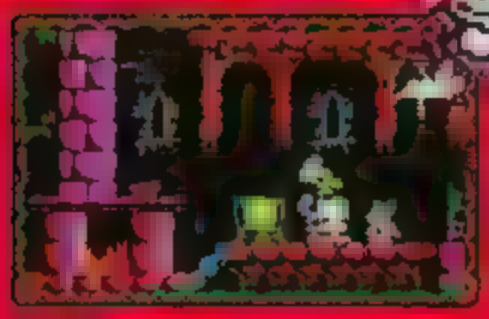
Turbo The Tortoise was obviously riffing heavily on *Sonic The Hedgehog*, although the game had more in common with *Super Mario Bros*. In terms of gameplay and presentation. As Turbo, you bounded through six horizontally-scrolling stages, disposing of baddies by jumping on their heads (or shooting them with a handy gun). Waiting at the end of each stage was a large boss which you had to defeat, and there were a number of bonus levels to find, too. *Turbo The Tortoise* was released twice – first by Hi-Tec, which went bust soon after, before being picking up and put out again by (guess who...) Codemasters.

1993 DALEK ATTACK

DEVELOPER: 221B SOFTWARE
GENRE: PLATFORMER

In the UK releases reduced to a trickle this year. The titles were Nigel Mansell's *World Championship* from Gremlin and this, Alternative's long-awaited *Doctor Who* game (which was due out in 1992 but kept slipping). Bizarrely it was a run-and-gun platformer but it was fast and mostly fun. *Dalek Attack* was the last game to feature on the cover of *Your Sinclair* magazine which closed this year, along with *Sinclair User*.





1994 TOWDIE

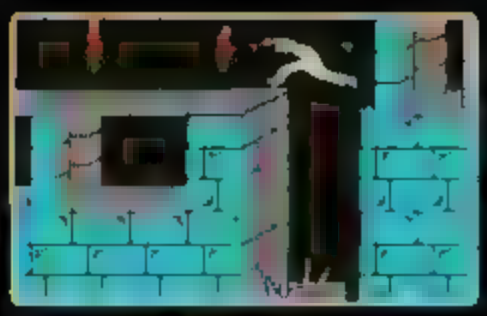
DEVELOPER: THE BALARA BROTHERS
GENRE: ADVENTURE

While the Spectrum was effectively finished in the United Kingdom, this was not the case elsewhere. Ultrasoft, from the former Czechoslovakia, continued to release commercial titles in Central Europe, including the puzzle game *Quadrax* and the arcade adventure *Towdie*. Although heavily indebted to the *Dizzy* series (of which there were many unofficial mods), *Towdie* was a great-looking game in which you played a tiny troll on a mission to slay a dragon.

1995 TWILIGHT

DEVELOPER: ULTRASOFT
GENRE: POINT-AND-CLICK ADVENTURE

Subtitled *Land Of Shadows*, this was another impressive release from Ultrasoft that successfully implemented a point-and-click adventure on the Spectrum. You play an astronaut returning to a barren Earth in the distant future. It doesn't feature too many locations and can be finished quickly, but it was an admirable achievement. A version of the game with the text translated into English was later released.



1996 PRINCE OF PERSIA

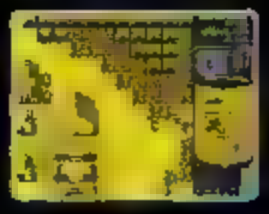
DEVELOPER: ENTROPY
GENRE: PLATFORM

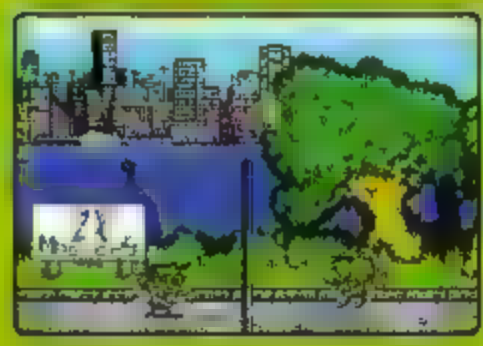
This story behind the belated release probably needs its own article. Having converted Jordan Mechner's hit game to the SAM Coupe, the programmers shopped around a Spectrum port in 1993 but there were no takers due to the shrinking market. Three years later this version was somehow acquired and sold commercially in Russia! It really is a great version of a classic game, and such a shame it wasn't put out properly in 1993.

1997 BLACK RAVEN

DEVELOPER: COPPER FEET
GENRE: REAL-TIME STRATEGY

The Spectrum remained hugely popular in Eastern Europe and there was strong demand for new software. This RTS game from Russian developer Copper Feet was definitely not *Stonkers*, being based instead on *Warcraft*. Despite the monochrome graphics, it played really well and was popular enough to spawn a mission disk and an isometric sequel (which sadly never progressed beyond a demo).





1998 HEADBALL

DEVELOPER: ZX MASTERS
GENRE: SPORTS

It was a fairly lean year in Spectrum land with just a steady flow of Russian games to keep things ticking over. The highlight of the year's output was this entertaining sports game from ZX Masters. Featuring nice chunky sprites and colourful animated backdrops, two players headed a ball (and later a bomb!) back and forth over a net, trying to keep it in the air for as long as possible. It's unsophisticated, but a lot of fun – with some nice AY tunes.

1999 TITANIC

DEVELOPER: FATA. TY
GENRE: PUZZLE

...mplicable title. This Russian oddity was themed around James Cameron's movie, yet the two players were based on Leonardo DiCaprio and Kate Winslet rather than their ...ssessed the game based on the title screen.

...game sequel. ...was released for the Game Gear in 1991. ...Dragonball Z series.

2000 EXISTENZ

DEVELOPER: TRIUMPH GAME LABS
GENRE: SHOOT-'EM-UP

It would be remiss of us not to highlight some mods. *Existenz* was an unofficial update of *Defjor*, ...the TRS-80 horizontal shooter from Spanish developer Dinamic Software. In fact, the game is also known as *Crazy Defjor* and that gives you an idea of what's going on here. The Russian dev team took the original game and ramped up the action to manic proportions and then underlined everything with a thumping AY soundtrack.

2001 ONE MAN & HIS DROID II

DEVELOPER: CLIVE BROOKER
GENRE: MAZE GAME

According to World of Spectrum, there were fewer games released this year than any other. Still, a total of 43 titles arrived in 2001, including this previously unreleased sequel. Clive Brooker wrote his follow-up in 1991, but Mastertronic wasn't interested in publishing it, so he shared it on the web. And we should thank Clive, as it's a sequel that deserves to be played.

2002 ZX HEROES

DEVELOPER: IGOR MAKOVSKY **GENRE:** PLATFORMER

There have been dozens of *Jet Set Willy* mods over the years, with the number increasing following the initial release of John Elliott's popular JSWED tool in 1996. Where as previously the mods simply added new screens for the intrepid Miner Willy to explore, the new editor introduced changes to the way many game elements worked, leading to more sophisticated room layouts for players to negotiate.

This 40-room mod from Igor Makovsky is one of the very best and needs to be experienced. It's basically a respectful tribute to some of the greatest games from the Spectrum archive including *Pyjamarama*, *Technician Ted* and *Dynamite Dan*. Some classic arcade conversions get a look in too, namely *Bubble Bobble* and *Arkanoid*. Imagine a bunch of classic game characters crashing a party in Willy's mansion and you get the idea. Another impressive Speccy release this year was *Abe's Mission: Escape*, a version of the first two *Oddworld* games which was the winning entry in the *Your Game 2002* competition.

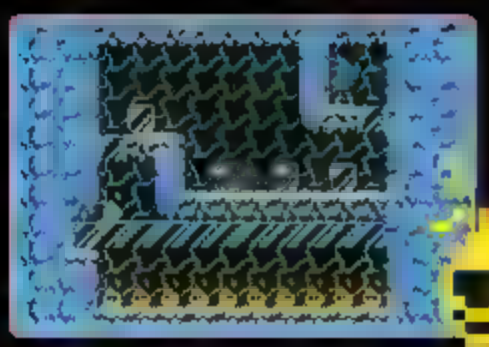
ON SPEC
IGOR MAKOVSKY

The Spectrum superhero stops by for a chat

On growing up with the Spectrum
A Soviet Spectrum clone (Kvant BK) was my father's present to me when I was six years old. Loading tapes, playing games, trying my first attempts at coding are deeply connected with sweet times spent together with my dad.

On the popularity of *Jet Set Willy* clones
It's easy to create a whole world with custom animations and an interesting, non-linear story with the right editor like the amazing JSWED.

On creating *ZX Heroes*
Jet Set Willy games have a unique rhythm. It's not too fast and not too dynamic – cosy and enjoyable to play with a cup of tea! I'm fond of making tributes and many games inspired me when creating *ZX Heroes*. The *Doom 3* beta was released that year and I wanted to show that we can keep Spectrum games in our hearts.



2003 FIRE 'N ICE

DEVELOPER: N-DISCOVERY
GENRE: ARCADE PUZZLE

Tecmo's arcade puzzle *Solomon's Key* was ported to many home systems including the Spectrum in 1987. *Fire 'n Ice* was the follow-up in which players had to extinguish the flames using blocks of ice. It was released for the NES in 1992 – until Russian group n-Discovery created this unofficial port for the 128K Spectrum.

This is perhaps the first title to open peoples' eyes to the Spectrum homebrew scene. Graphics and sound are top-notch and the design is perfect. All in all it's a gorgeous game that everyone should try out.

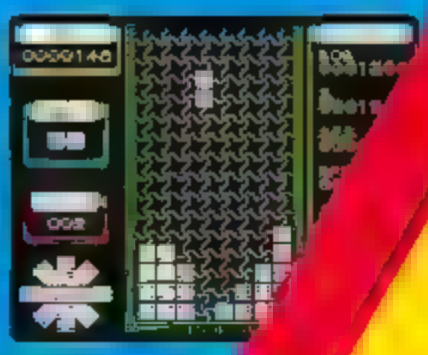
2004 FUN PARK

DEVELOPER: JONATHAN CAULDWELL
GENRE: SIMULATION

Jonathan Cauldwell is known to many fans as a prolific creator of homebrew, releasing dozens of games over the past 15 or so years. *Fun Park* is one of his most ambitious titles, being a demake of Bullfrog's *Theme Park* that runs on a 16K Spectrum. The original version, a minigame competition titled *Amusement Park 4000*, was even more remarkable, running in just 4K! But *Fun Park* is much more than an example of what can be achieved in limited memory.

2005 DOMINETRIS

DEVELOPER BOB SMITH **GENRE** ARCADE PUZZLE



ON SPEC
JONATHAN CAULDWELL

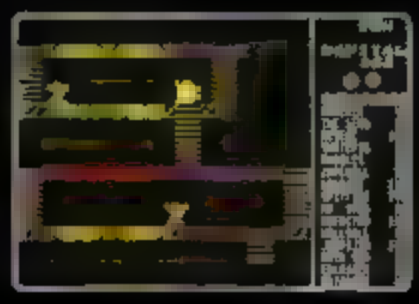
The developer on his love for the Speccy Scene

2006 GAMEX

DEVELOPER: JONATHAN CAULDWELL **GENRE:** MINIGAME COLLECTION

Another one from Jonathan Cauldwell and this was probably his most intriguing and ambitious game to date. We say 'game' when this is actually a collection of 16 minigames based on classic arcade concepts (although to refer to them as mere classics is doing them a disservice, as there are some brilliant little challenges included).

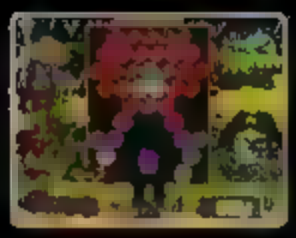
Rather than just be a collection of titles, the games are all connected by the unique 'Games Exchange' element where you buy and sell shares in the games on offer. So you begin by building up some of your capital by playing a *Pac-Man* variant and then invest this in other titles of varying difficulty, using your own game-playing skills to amass more and more resources. You'll need to watch out for tax (too many penalties and it's game over), but more importantly you need to keep your eye on the time as it's easy to lose track of it when you are wheelin' and dealin' on GamesX. The stock market shenanigans returned for a sequel, subtitled *Playing Dividends*, which was released in 2018.



2007 CANNON BUBBLE

DEVELOPER: COMPUTER EMUZONE
GENRE: PUZZLE

Spanish team Computer Emuzone produced some strong remakes this year, including the *Bejeweled* clone *Betiled*. But in terms of retro appeal you can't beat *Cannon Bubble*. Featuring pirate-themed graphics and a jaunty soundtrack, this is a game that does everything right. It even includes a two-player mode so you can go head-to-head against a friend.



2008 SPLATTR

DEVELOPER: BOB SMITH
GENRE: SHOOT 'EM UP

and no colour clash

like the Speccy

Yet if the sprites

then the attributes

2009 KING'S VALLEY

DEVELOPER: RETROWORKS
GENRE: PLATFORMER

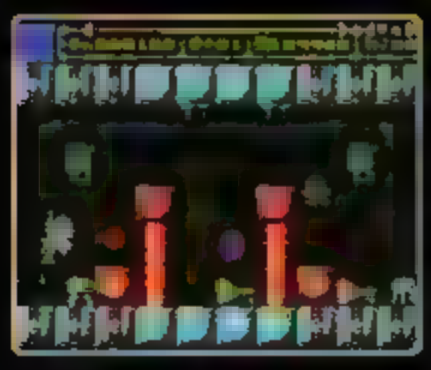
The MSX library is littered with Speccy ports, so it's nice to see it work in reverse sometimes. This conversion of Konami's platformer from Spain's RetroWorks is a joy to play. Think *Lode Runner*, only here you're raiding pyramids for treasure. As you'd expect from RetroWorks the presentation is spot-on, featuring impressive graphics and AY tunes.

2010 HORACE IN THE MYSTIC WOODS

GENRE: PLATFORMER

Horace was a mascot for the Speccy, appearing in three beloved titles. A fourth game was canned in 1985 but that wasn't the end. In 1995 Psion hired Michael Ware to write *Horace in The Mystic Woods* for the Psion 3 PDA and 15 years later Bob Smith ported the game to the Spectrum.

Horace's return was the highlight release of this year. The original version was monochrome, but on the Spectrum all 44 screens of platforming action are daubed with lovely colour. The controls are excellent, as is the sound. It's good to have you back, Horace.



2011 CRAY 5

This was the strongest year yet for homebrew releases, with a glut of great games arriving. *Cray 5* takes the crown for being charming, challenging and just brilliant.

The game was originally developed by Topo Soft in 1987 and released for the Amstrad CPC. Topo Soft did release a number of games for the Spectrum but *Cray 5* was not one of them. Thanks to RetroWorks, this oversight has been corrected – with some style. It looks amazing, resembling a Raffaele Cecco game, and the AY soundtrack is fantastic. Overall it's a clear cut above the CPC original.

2012 SURVIVISECTION

DEVELOPER: SANCHEZ **GENRE:** SHOOT 'EM UP

Another year where it's hard to select the best game. Survivisection from Sanchez (Aleksander Udotov) has to be singled out, though, for taking the theme of *Commando* and taking it further than anyone thought possible on the Spectrum.

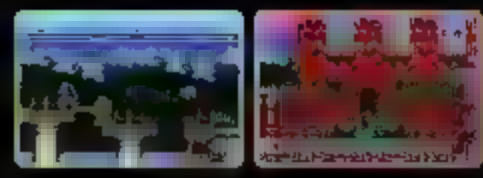
Rather than control your soldier directly you use a pointer to select where he moves and fires. And it's not about shooting everything, as there's a degree of strategy and puzzling, too. Plus it looks great, featuring full colour

2013 BRUNILDA

DEVELOPER: [illegible] GENRE: GRAPHIC ADVENTURE

In this Zelda-style adventure you play a monk on a pilgrimage who seeks shelter for the night in a village – and it turns into a long night indeed as a mystery unfolds and you're called on to converse with the locals and explore the surrounding forests and caves.

This is a pure graphic adventure with no battles, and the emphasis is on story, and the adventure system, with its colourful environments and eight-way scrolling, is exceptional. It's long and involving but it's split into several chapters.



2015 CASTLEVANIA: SPECTRAL INTERLUDE

DEVELOPER: REWIND GENRE: ADVENTURE

You could say that the games in this list have been leading to this moment, when in 2015 Aleksandar Udotov unveiled his version of *Castlevania* for the Spectrum 128K. It was a significant moment, as word of this title spread far beyond the usual circles. For a while it seemed that everyone was talking about *Spectral Interlude*: the detailed graphics, the incredible 12-song soundtrack, and the fact that this was *Castlevania*, in all its whip-cracking, vampire-slaying glory, on the Spectrum.

The game actually started out as a Spectrum version of the NES game *Castlevania II: Simon's Quest* but soon emerged as an original, 150-screen adventure that stands proudly on its own.

2014 METAL MAN RELOADED

DEVELOPER: OLEG ORIGIN GENRE: SHOOT 'EM UP

There was a time when *Robocop* was held up as one of the most impressive games on the Spectrum. Fast forward 25 years and we have *Metal Man*, who stomps all over poor Murphy. The design is similar to Ocean's hit but the graphics are, well, just look at them. There's no monochrome drabness here, oh no. Like many of Ocean's titles, it's a mix of styles, with on-foot shooting with puzzle sections and a nifty motorbike sequence.

If you're wondering about the title, the original *Metal Man* was originally released by Oleg Origin in 1997 on a Russian compilation disk.

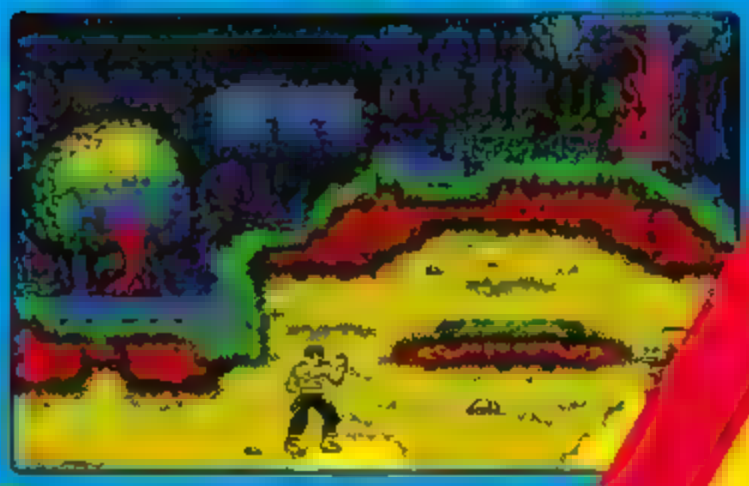
2016 SNAKE ESCAPE

DEVELOPER: EINAR SAUKAS GENRE: PUZZLE

Perhaps fuelled by the success of *Spectral Interlude*, 2016 turned out to be a golden year for releases. Highlights include the adventure game *Sam Mallard*, the *Boulder Dash* update *Tourmaline*, and unique driving/action/puzzle thing *Car Wars*. And not forgetting *The Dark*, the *Doom* clone from Oleg Origin (which was another update of one of his experiments).

Our top choice is *Snake Escape*, Einar Saukas' version of the popular online game *Line Rick* in which you guide a snake to the apple using its own coiling body as a platform. You'll notice that the graphics (by Jarrod Bentley) are a lot more colourful than usual and that's because the game uses Einar's own *Nirvana Engine*, a software solution to the Speccy's limited colour resolution which lets you have up to eight colours per character square. It's a truly impressive effect and it works on any standard Spectrum. Several other *Nirvana* games, including *Dreamwalker*, *Multidude* and *Stormfinch*, have been released previously and *Snake Escape* continues this trend for hyper-colourful Spectrum games.

2017 AND BEYOND...



THE KINGS OF DONKEY

HIGH SCORE HEROES

KONG

Ten years after the release of the film The King Of Kong, the battle for the high score on Donkey Kong is as intense as ever. Paul Drury talks monkey business with the key players

Billy Mitchell leans towards us and stares directly into our eyes. "You're saying somebody stole my thunder? Listen, I got a Donkey Kong kill screen in 1982 and no one did that again until the turn of the century. It was that achievement that began this whole hoopla. It was why the film was made and led to the revival of competitive videogame playing – do you think anybody sits on top of Donkey Kong more than me?"

Whoops. Maybe it was a mistake to ask the most recognisable man in classic arcade gaming how it felt to no longer be the King Of Kong. He has a point though. Once known as the first player to score the perfect game on Pac-Man, an achievement not without controversy but that's another story, Billy Mitchell became synonymous with Nintendo's 1981 arcade hit due to his memorable turn as the villain of the piece in the film The King Of Kong. Released in 2007, it portrayed Billy as a kind of evil overlord, directing goons to do his dirty work and crushing the plucky underdog Steve Wiebe, pretender to his crown, under the weight of his huge ego. We wondered just when Billy realised he was being cast as Darth Vader to Steve's Luke?

"They smoked that past me," he replies in classic Yankee fashion. "A friend told me what they had done in the film, because, and I know people will want me to take a polygraph test before they believe this, I don't watch the films 'm in. The experience of making ▶

DONKEY KONG

» The new kings with the old (l-r) Robbie Lakeman, Billy Mitchell and Wes Copeland

▶ It was tremendous, though. "I don't have a problem playing the bad guy. I think I'm pretty good at it."

So was it all an act? We are talking to Billy at the Florida Freeplay pinball and videogame show and he undeniably has an onstage persona. Dressed in a tuxedo as immaculate as his hair, he is all swaggering bravado, posing for photos with his trademark raised thumb and lapping up the attention. Offstage, he is thoughtful, witty and even quite humble, a family man who talks fondly of the friends he has made through videogames far more than the fame it has brought him. Given the negativity that followed his appearance in the film, does he wish he had never got involved.

"During the filming, a lot of people I know turned to me as the one with wisdom and experience and asked, 'Hey, are these film-making guys okay?' and I said they were," he sighs. "That's why I feel an ass. I didn't feel anything bad would happen. When it came out, I phoned all the people that had been made to look stupid in the film, who had been called 'my minions', to apologise to them. That was a hard thing to do."

One of those supposed minions was Billy's old friend Steve Sanders. Steve appeared alongside Billy in the famous Life magazine photo taken outside the Twin Galaxies arcade in November 1982 featuring 16 high scoring champions next to their arcade machine of choice. Steve, author of The Video Masters Guide To Donkey Kong, is pictured leaning proudly over a Donkey Kong cabinet, thanks to his record score of 3,165,300. Hang on, that's almost three times higher than the current top score. Steve, are you the real King Of Kong?

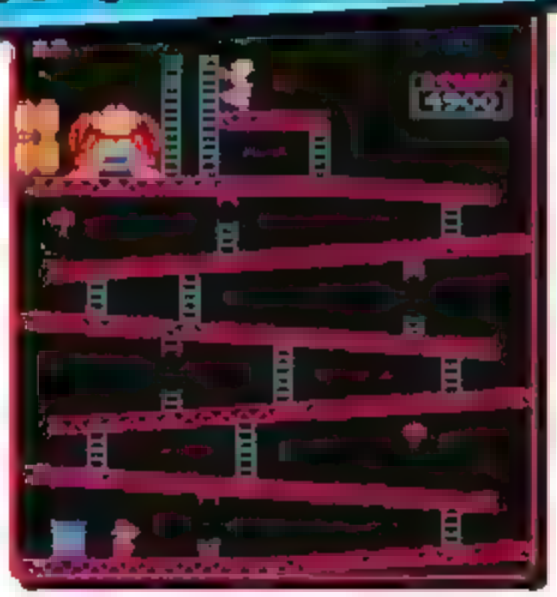
> **"I don't have a problem playing the bad guy. I think I'm good at it"**
> Billy Mitchell

"No, I lied and cheated my way to fame," admits Steve with a resigned grin. "I desired the reputation of being the world's best gamer so much that I sacrificed my integrity to keep up appearances. I lied about my high score and it's one of the greatest regrets of my life. Billy should have been on that Kong machine, not me. The fact that he forgave me when I admitted it and became one of my best friends is testament to his character. The result was life changing. I never wanted anyone to perceive me as a liar ever again."

Being truthful is something Steve, a practising attorney at law, holds dear. He argues vehemently against the demonisation of Billy in the movie, pointing out how through judicious editing, wilful omission of key facts and a laissez-faire attitude to the actual sequence of events, the filmmakers twisted the narrative to cast him as the bad guy. "Take the part where Billy supposedly sends a 'squad' to Steve Wiebe's house

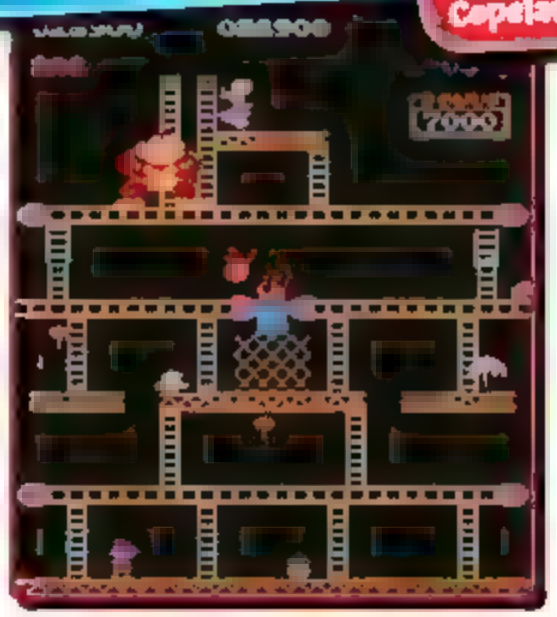
SO YOU WANT TO BE KING?

Current World Record holder Wes Copeland shares his high scoring tips



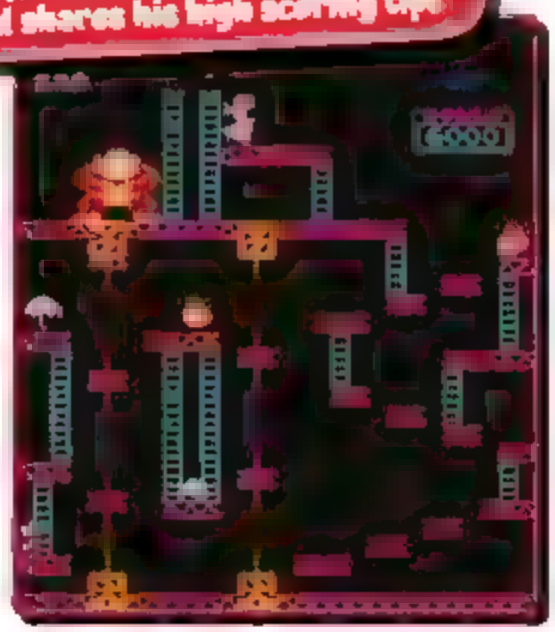
BARRELS

■ Don't go for the bottom hammer unless you're a very experienced player. The longer you stay on the screen, the more dangerous the barrel groupings get that you'll have to overcome. Rush to the top, grab the top hammer and move on. Also, remember that it's possible to control many of the barrels on the screen with your inputs. They're more likely to go down ladders that you're walking towards.



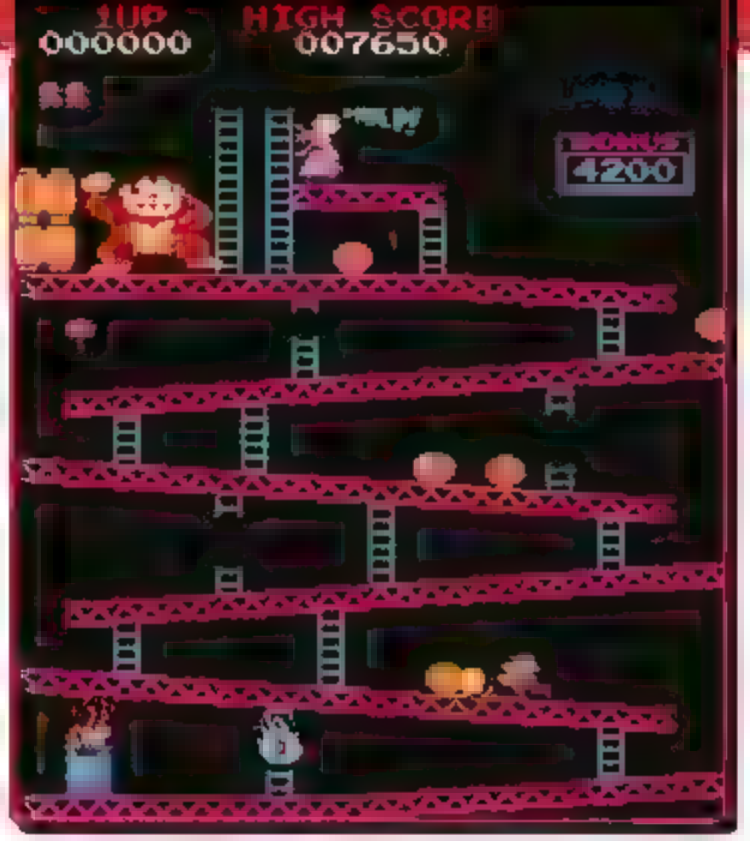
PIES

■ When the screen starts, it's best not to move until all the fireballs jump out of the oil can. You want them to jump out of the left, that way you have a chance to easily clear the screen on the right while they're out of the way. If the fireballs don't let you clear on the right, hang out on the bottom of the screen until they all go away. Once they're on the top with Donkey Kong, they can't come back down.



SPRINGS

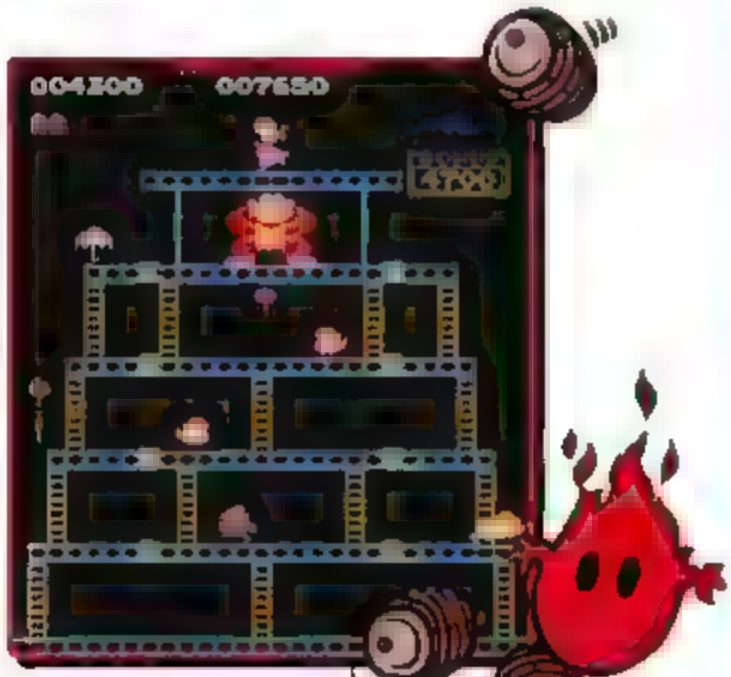
■ Learn to recognise the length of the springs. You can see this by watching where they bounce in relation to where Donkey Kong is standing. Notice they don't all bounce in the same spot. Some springs are long, others are short. The long springs (the ones that have their initial landing in between Donkey Kong's feet) are the springs that are deadly. Short springs are the ones that are safe to make a run for the ladder on!



to inspect his machine," he protests. "Bill never sent anyone and it was Steve's own mother who invited the gentlemen into the garage to play Donkey Kong while they waited for Steve to come home."

Steve continues to point out many similar distortions and inaccuracies, from the fairly basic fact that one Tim Sczerby was the record holder rather than Billy Mitchell when Steve Wiebe started submitting his scores to Twin Galaxies for recognition, to juxtaposing shots that seem to show Bill ignoring his rival when in fact they had been chatting and joking together moments before. Given his current profession, has Steve ever considered prosecuting the offending filmmakers? "I still think it's one of the best documentaries ever made and I absolutely love it," laughs Steve Sanders. "Seth Gordon and Ed Cunningham (director and producer of The King Of Kong respectively) are master storytellers. They

▶ Smashing barrels is an easy method to pure your score up



RIVETS

■ Always use the 'Star Pattern' to clear the board. The Star Pattern is a particular order for clearing out the first four rivets on the left. Get the lower one first, then work from the top. On the last remaining left rivet, you should be able to grab the hammer and run across. When you smash fireballs, they'll then respawn on the left and be trapped or zoned out so as to no longer be any threat.

Q&A: STEVE WIEBE

The hero of The King of Kong looks back at the film and the continued obsession with Donkey Kong

How did you come [illegible] The King of Kong?

[illegible]

Did you realise you were being cast as the hero and Billy Mitchell as the villain?

[illegible]

Do you think the portrayal of him in the film was unfair?

[illegible]

Were you surprised at how well received the film was?

[illegible]

You became quite the celebrity?

[illegible]

Your wife also appears in the film. How does she look back on the period of your lives?

[illegible]

You continued to play Donkey Kong competitively for many years and almost won the first Kong Off. Could you ever reclaim the record?

[illegible]

And finally, who do you think is the true King of Kong?

[illegible]

DONKEY KONG

THE KONG OFF

Richey Knucklez, founder of the Kong Off competitive event, tells us how it started

What inspired you to organise the first Kong Off tournament?

[illegible]

What are your abiding [illegible] that first event in 2011?

[illegible]

Do Steve won the first Kong Off?

[illegible]

Why do you think players are still settling to be the best at *Donkey Kong*?

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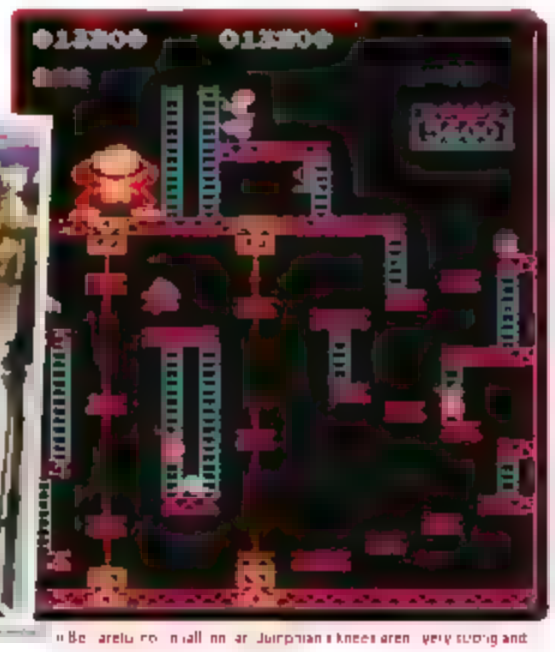


Be careful not in all [illegible] Jumpman's knees aren't very strong and too [illegible] will lose you a [illegible]

" You need the skill to capitalise on the good luck"

Wes Copeland

▶ made obscure subjects and subject matter into a film everyone could watch and enjoy. They just didn't tell the story that Billy, and others, hoped they would."

As well as making the tale of two grown men battling for bragging rights on a 26-year-old videogame accessible and entertaining to a mainstream audience, they also ignited the interest of the classic gaming community. Whilst anyone with even a passing knowledge of old arcade games knew Donkey Kong, before the release of the film it was not generally seen as a 'tournament' game. The huge success of The King Of Kong changed all that. Events like the Kong Off (see boxout) encourage head to head competition, sites like Twitch allow players to stream their games and a whole community of avid gamers have coalesced around donkeykongforum.com which conscientiously tracks the scores of the 300 best players. Steve Wiebe and Billy Mitchell, the old kings, just scrape into the top 20. The ten best scores have all been achieved in the last five years and the world record has changed hands numerous times since 2010, with Wes Copeland currently sitting in the number one spot thanks to spending just over three-and-a-quarter hours in May 2016 amassing an incredible 1,218,000 points.

"A record-breaking game takes a combination of both skill and luck," smiles Wes. "You need the skill to capitalise on the good luck, so you're looking for that lucky game. I would say for every 20 games of Donkey Kong, only one has the potential to [set a record] just based on the randomness in the game."

There are two key things you need to know about Wes. First, his skills are mesmerising. Just visit twitch.tv/wescopeland if you need any convincing of his mastery of the game. Second, he is 26 years old. Yes he wasn't even born when Donkey Kong first entered the arcade. If his quest to be the best isn't due to nostalgia or rekindling a childhood passion for the game,

It's a tough [illegible] getting to 15um, let alone racking up a score that will make Water [illegible] blush.

we assume it must be down to seeing The King Of Kong and deciding, 'I want that crown'.

"I think it's a common misconception that the film is the reason why people are interested in competing on Donkey Kong," Wes corrects us. "There are films about other classic titles and they receive little to no attention. What attracted me to the game was the fact that, by accident, it's perfectly built for competition."

This is something we had not considered. Surely any game that records a high score is ideal for competitive play?

Wes outlines the factors which make Donkey Kong so well suited. "First, it's easy for anyone to understand. It's watchable even if you're not a player. Second, due to the heavy amount of randomness in the game, there are no all-purpose patterns that work 100 per cent of the time. No two barrel boards will ever be the same. Sure, there are patterns we use on the rivets screen, but they only work about 60 per cent of the time at best. As a result, the game forces you to be inventive, creative and strongly leverages your problem-solving skills. Third, the game length is just enough to drive you to borderline insanity but not push you over the edge. A safe kill screen game takes an hour and a half and a world record game takes about three and a half hours. And fourth, there's the kill screen itself."

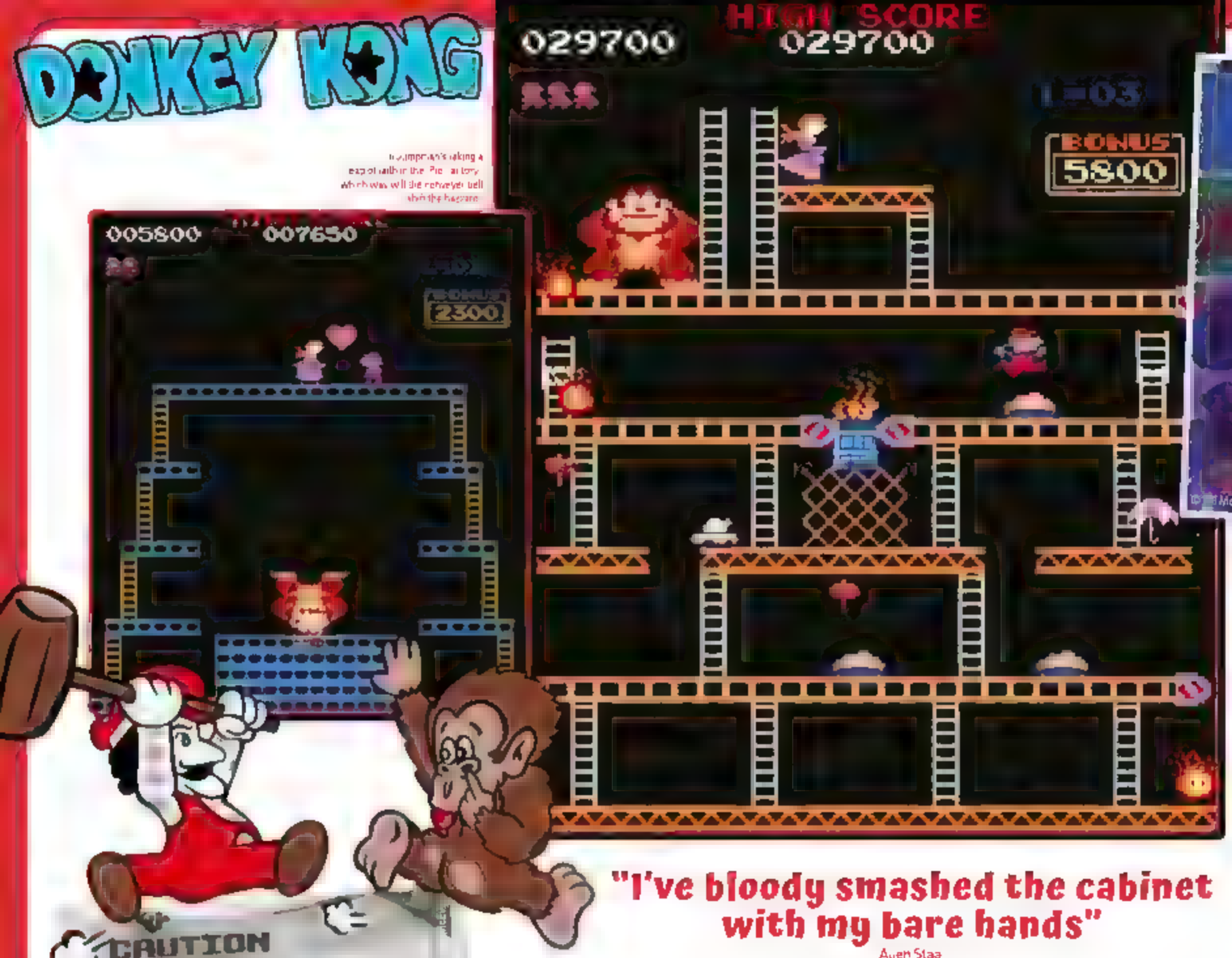
Ah yes, the infamous kill screen. A bug in the code means on level 22, after 116 screens of leaping and ladder scaling, Mario (or Jumpman as he is named in the game) unexpectedly keels over and dies after just a handful of seconds. Even the most skilled player could never complete the board in the minimal time given so it effectively provides a distinct 'end' to the game. That's important because it means, unlike many classic titles, it cannot theoretically be played forever. Games like Q*Bert, Asteroids and Nibbler, which give players extra lives at regular intervals, can be 'marathoned', with single games often lasting several days, and achieving the high score becomes as much a test of endurance as skill. With Donkey Kong, the predetermined end point means players must focus on meticulously exploiting every possible point scoring opportunity along the way. "Many classic games have one of these four factors but it's a truly rare gem that has them all," notes Wes. "It's ▶

WALTER'S WISE WORDS

The high score referee gives his take on the documentary

[illegible]

• 'New' boy Robbie Lakeman (left) battles Steve Wright (right) at RegionFX, July 2016.



"I've bloody smashed the cabinet with my bare hands"

Allen Staal

To be the best at any hotly contested game requires the kind of single-minded dedication and endless practice which most psychologists would deem obsessive but we have noticed something else whilst watching videos of the top players showboating their skills at live events. They actually get emotional. There are head slaps, fist pumps, whoops and the occasional profanity. Compare that to the grim determination on the face of an expert Pac-Man player, silently striving for the perfect game. Donkey Kong seems to really inflame passion in its players and none more so than Australian Allen Staal.

"I've bloody smashed the cabinet with my bare hands," confesses Allen, who has reached the kill screen on half a dozen occasions but is yet to crack the magic million mark. "I've broken my knuckles a couple of times and cracked a wrist. I've often said I'll take an axe to the bloody thing but I don't because it took me so long to build the cabinet in the first place! Yeah mate, Donkey Kong is an obsession."

Allen is what is diplomatically known as a 'character'. His outbursts while streaming his play online have become legendary, featuring industrial levels of swearing, full frontal cabinet abuse and singalong rants directed at his rival, Brian Allen, who he carefully explains is a "fucking idiot". You will find no less than five 'rage' compilations of Brian's hugely entertaining antics on YouTube. "Number 4 is my favourite," quips Brian. "It's definitely not healthy me swearing and carrying on the way I do. It's just I want that high score mate and I get so frustrated when I can't. The Americans that tune in seem to love it for some reason. I was a nobody here in Australia but now I've travelled to America to the Kong Off and have friends all over the world."

Allen is a well-known figure in the Donkey Kong scene and clearly enjoys being part of the worldwide community which has grown up around the game yet even he notes that some of the rivalries are far from friendly. Back-biting, bitterness and allegations of foul play have sadly become as common as the camaraderie of players sharing tips and tricks and enjoying seeing the score pushed ever higher.

"It's a members club, a social clique, and I think they've inadvertently alienated more people than they've retained," states Cat DeSpira, a videogame writer, avid arcade collector and outspoken critic of the male-dominated tribalism she sees as blighting the classic gaming community. "The attention Donkey Kong has received over the last ten years didn't happen organically. It was a direct result of commercial marketing via the two main characters in the film, Walter Day and Billy Mitchell, and they've used the recognition they've received from The King Of Kong to reinvent their historical accomplishments to imply they had more influence on classic gaming than they ever

Robbie Lakeman after his triumph at Kong Off

why Donkey Kong is perfect for competitive gaming and I'm a very competitive person."

Of course, you cannot have competition without competitors and Wes' record-breaking score was undoubtedly a product of his rivalry with previous champion and victor of the last Kong Off, Robbie Lakeman. "When Wes started competing against me it made me even more motivated to play," reveals Robbie who at 30 years old is another of the new generation of contenders who didn't grow up with the game. "It sped up my progress as a player. I hope I can take the record back one day. With the right amount of luck, my highest score would be around 1.25 million but I don't want it to consume all my time. I became obsessed with wanting to be the best at it. It can become an unhealthy obsession when it starts to feel like a second job."

Robbie Lakeman playing Scott Wolf with Steve Wiebe

really had. I see that arrogant ass Mitchell at Kong Off events, sauntering around the room like an old, worn out tune, barely able to play the game at the level he's acting he can or ever did, knowing no matter who wins, he will still maintain the rhetoric that he's 'The King of Kong and Day will eternally back him up."

Cat is in no doubt who isn't the King but that leaves the question of who exactly is? In one sense, the answer is obvious. Right now, it's Wes Copeland. He has the highest score ever recorded but it could be beaten by Robbie Lakeman or any skilled contender tomorrow. Indeed, someone inspired by this article to study the videos online, learn the secrets of maximising their score and put in the many hundreds of hours of practice required could become the new champion

The more interesting question is why is Kong still King? Of all the games from the Golden Era of the arcade, why does Donkey Kong remain such a draw to players old and new? We think it's a combination of factors. The film undoubtedly brought it to the attention of an audience far beyond the retro gaming crowd and the movie title unequivocally posed a seductive challenge to a whole new generation of players. It also inextricably linked the eternally photogenic Billy Mitchell with the game, meaning every public appearance, interview or media mention of the most famous man in classic gaming inevitably leads to talk of Kong.

Then there are the mechanics of the game itself, which lend themselves so well to score chasing. The competitive gaming scene that has sprung up around events such as the Kong Off keeps the interest high as does the fact that the crown keeps changing hands with new challengers emerging to challenge the old guard. The community which has developed around is crucial here too, particularly in the early days when videos posted by experts such as MAME master Brian Saglio showed how the score could be pushed into the stratosphere. And there's the 'Mario factor' gamers will always want to know where the most iconic videogame character in history had his first jump

One other thing. It's just a bloody good game – easy to learn but difficult to master, as all the best games are. So put in a credit, hit start and see what your answer is to that enduring question. How High Can You Get? ★

Thanks to all the Kings and Queens of Kong who contributed to this article.

SCREEN PLAY

Five more great films about classic videogames

INTO THE VALLEY OF THE SPACE INVADERS 19[illegible]

HIGH SCORE [illegible]

CHASING GHOSTS 2[illegible]

MAN VS SNAKE 2[illegible]

THE LOST ARCADE 2[illegible]

THE MAKING OF NEBULUS

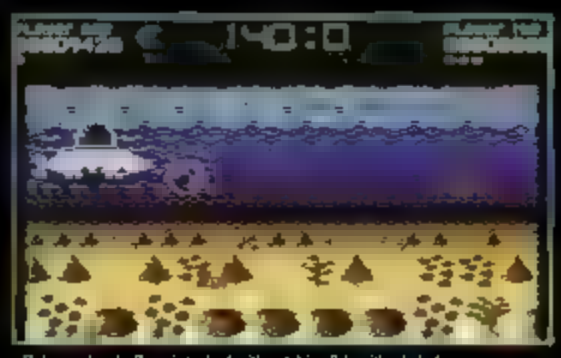
Uridium seems an unlikely inspiration for a platformer, but then Nebulus started out as a shooter. John M Phillips tells Rory Milne how a revolving cylinder evolved into an 8-bit classic

IN THE KNOW

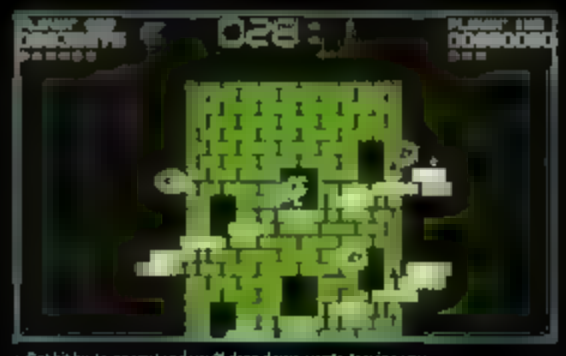
- **PUBLISHER:** HEWSON CONSULTANTS
- **DEVELOPER:** JOHN M PHILLIPS
- **RELEASED:** 1987
- **PLATFORM:** C64, VARIOUS
- **GENRE:** PLATFORMER

During the Eighties, many UK games coders favoured a single system, but some Spectrum specialists also converted their work to the Amstrad, and certain C64 developers had cut their teeth on the BBC B. Less common, however, were programmers who worked on all four popular computers, but John Phillips was one such coder, and, as he explains, in mid-1987, his Uridium-inspired follow-up to the critically-acclaimed Impossaball was about to switch systems and to take influence from a game written for a third. "My setup back then was that I had a BBC Micro," John begins, "which was the main machine. It had a cross-compiler and was hooked up by parallel ports to a Spectrum and C64. [Nebulus' towers] started out as horizontal cylinders scrolling across the screen left to right – that was on the Spectrum. Basically there was a spaceship that went along the cylinder surface, and there were abstract aliens spinning around it. When I switched it over to the C64, that was when technical challenges began causing problems. I was using character maps – that was the reason for why the towers were done vertically. One of my favourite games at the time was Frak!, on the BBC, and I just fancied doing something like that."

As well as platforms and monsters, Frak! also boasted a colourful lead in Trogg the caveman, and soon John set about designing a multihued hero of his own,



» Between levels, Pogo is tasked with catching fish with a bubble gun in a submarine.

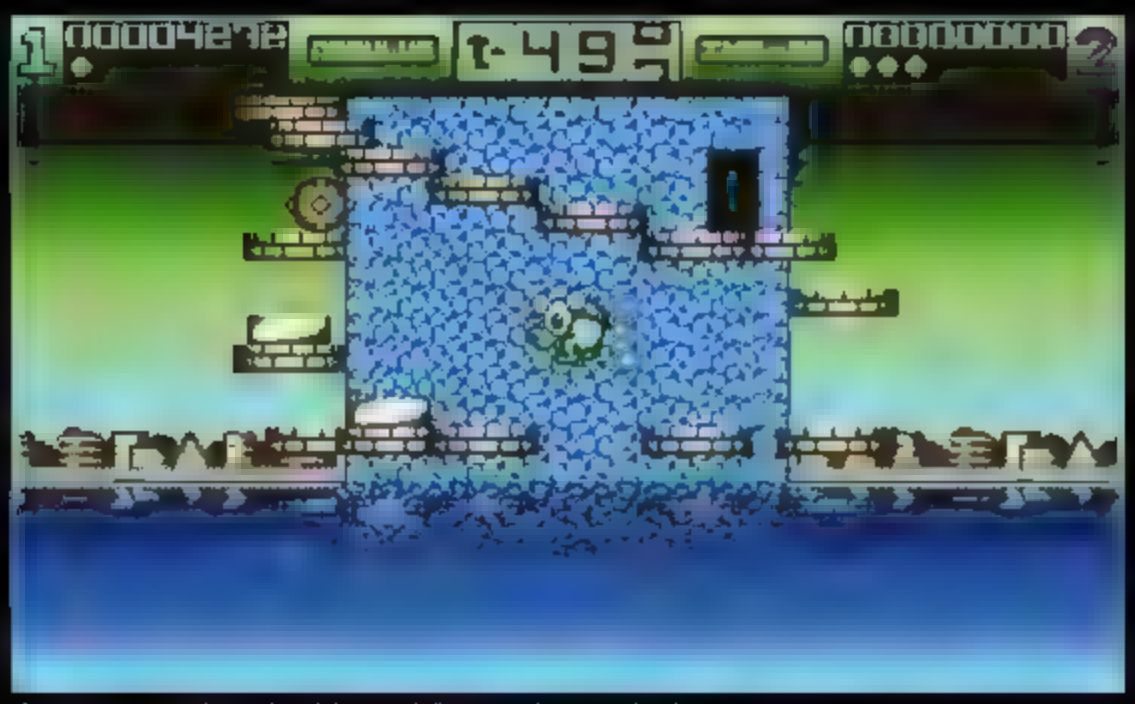


» Get hit by an enemy and you'll drop downwards, leaving you precious little time to reach the tower's entry.

one that was brave enough – and small enough – to enter the doors that he planned to implement in his game's revolving cylindrical towers. "Half the game ran on the BBC, I either had an art package or I made one, and I wrote a sprite editor," John remembers. "It was all organic; I just started writing the game. I think Pogo came first, he was one of the first things I did, I think most of the other characters came as the game developed. Once I got onto the C64, I realised I needed a character. I think there were several before Pogo. It was just a case of finding 'something' that could rotate, and of a size that he could fit through the doors."

That 'something' was part-pig and part-frog, but if Pogo looked odd, then John's other characters – Pogo's geometric foes – looked surreal, although their appearance was dictated by ease of animation rather than design. "They were mainly down to necessity; they had to be symmetrical. They had to be drawn in 16 frames of animation, with all the rotations. Those limitations meant that you were very limited in what you could do – I had to be able to draw them, this was before 3D art packages. But it appealed to me [that the enemies looked surreal.]"

Of course, Pogo and his strange foes needed a world to inhabit, which required John to write a 2D level editor to make his rotating tower mechanic playable. A byproduct of which saw upcoming threats that were visible in two dimensions become hidden



» After outsourcers failed to deliver an Amiga Nebulus, John Phillips produced the conversion himself.

dangers when depicted in 3D. "The way I designed the towers was I had a level editor; you could lay levels out on a grid. I'd design a tower, add it to the game, play it, change things and play it again. Once I could finish a tower, it was okay. Because of the way that I designed it, the level editor showed a flat grid – 16 cells wide. So it wasn't until you actually played the game that it was wrapped around a tower. [The obscured hazards were] just a happy accident!"

A less-happy experiment followed, as John tried to connect the towers he was designing by combining a number of them on-screen to form battlements. "I was just trying to find ways to link the towers into an overall world. I think there were a number of ideas for that. Because of the way I was rendering, you drew everything from the front to the back so it didn't matter how many things you had on the screen – the game's frame-rate would be constant. The idea didn't work. I had a prototype, but I just abandoned it."

One positive of John's abandoned 'battlements', however, was that they gave him the idea of having the doors on his towers lead to corridors, which he retooled to work with single towers. "They looked cool!" John enthuses. "I added them to the level editor, tried the game and realised they worked. I think they were originally [connected to] the battlements idea; the battlements needed some way of transferring you from one tower to another. It was just one of those silly ideas I had. You have a corridor, and you have Pogo rotating, and entering and exiting at either end. I just realised it worked and stuck with it."

John also stuck with Hewson Consultants – the publisher of his most recently-published title – where the helpful staff and persistent boss gave the designer advice and motivation, respectively. "Hewson published my previous game Impossaball. They kept on contacting me and asking what I was doing. They were quite a small company; it was virtually Andrew Hewson and a couple of staff in the office. They had a producer – Paul Chamberlain – and he gave some input. And so did another guy – Barry Simpson. I had to go up to Hewson every couple of months, every time I did a different version of the game. I'd loads of different versions exploring different graphic styles. Andrew Hewson was good at pushing me. He'd phone up and say: 'Have you thought about this?' And I'd go away and think about it."

Much of what John thought about evolved into gameplay elements for his rotating towers, including dissolving and destructible platforms – the latter of which would cause obstructions and backtracking, and required John to arm Pogo with snowballs. "We ▶

NEBULUS 101

■ Essentially a vertical platformer, albeit one that's set on the outer walls of a series of rotating towers, *Nebulus* combines platforming standards with novel gameplay. So when he's not negotiating elevators and disintegrating floors, the game's protagonist is tasked with dispatching foes and removing obstacles by throwing snowballs at them.

wanted to have destroyable blocks. It was just a case of making them a different size from the normal blocks – and making them flash was an easy thing to add. You could force backtracking, that was an easy matter. I think originally there was no shooting. But then we realised that destroyable platforms would be good, and then how do you destroy them? The snowballs were just ... well, you needed something large enough so that you got to see it. You had a starfield at the back, and bullets would have just looked like stars."

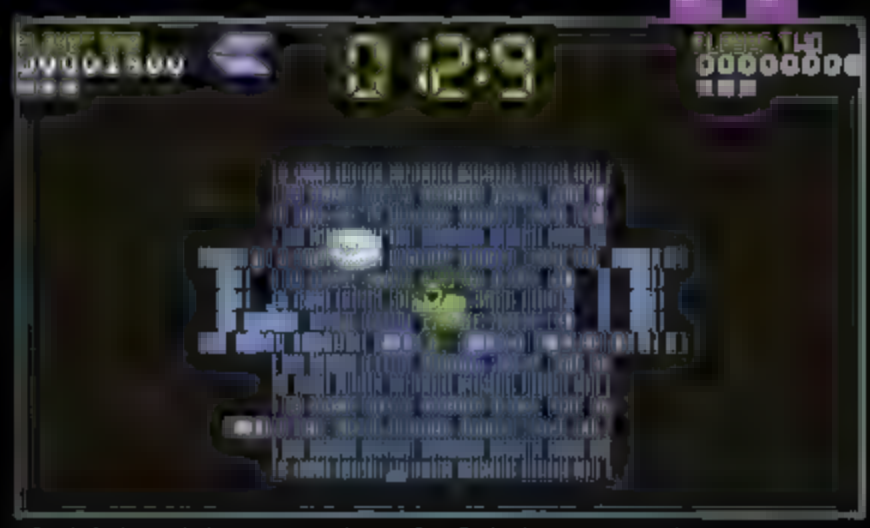
Besides a starfield, on the advice of Hewson's boss, John's evolving game soon shared a second aspect of the project's original inspiration, Uridium; bonus levels that would connect the main stages. "Andrew Hewson was trying to make me think of bonus levels. I just thought of a scrolling seabed. I can't remember when it came about. I think we were trying to figure out how to start the game, because you've got a submarine. The submarine comes up and the lid draws back and Pogo jumps out. I think the submarine

DEVELOPER HIGHLIGHTS

IMPOSSABALL
SYSTEM: ZX SPECTRUM, AMSTRAD CPC
YEAR: 1987

NEBULUS
SYSTEM: C64, VARIOUS
YEAR: 1987

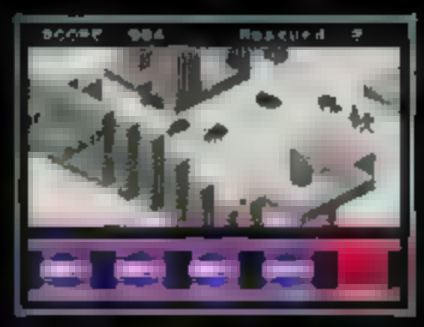
ELIMINATOR
SYSTEM: [illegible]
YEAR: 1988



Ghastly visuals aside, the Atari 7800 Nebulus – known as Tower Toppler – is an accurate conversion.

MECHANICAL MARVELS

More games that pushed technical boundaries



ANT ATTACK

Although far from the first 3D videogame, *Ant Attack* hosted one of gaming's earliest three-dimensional open worlds. Art school graduate Sandy White approached the creation of *Ant Attack*'s unique visuals as an exercise in sculpture and devised rescue-mission-themed gameplay to complement his game's immersive pixel-brick world.

I, ROBOT

Besides introducing filled polygons to videogaming, Atari legend Dave Theurer's cult classic also boasted a completely unique look. Viewed from an aerial third-person perspective, *I, Robot* challenges its iconic, geometric protagonist with trippy chess-like platforming, surreal mazes, intense shoot-'em-up sections and set-piece bosses.

> "I realised that we had to tone down the game. We made it more linear"
>
> John M Phillips

was in fairly early, and that probably just led to the underwater levels."

In-house playtesting followed, both by John and selected Hewson staff, but the real test of the game – now known as Nebulus – came later, when the title was previewed at an industry trade show. "I think there were only about three people that played it – it was Paul and Barry at Hewson, and me. That was it. We went to some trade show – one of the early PCW shows – and we had Nebulus on the stand. Everyone was transfixed by it, but realised as soon as they tried it that they couldn't play it. I think it was the fact that they hadn't seen anything like it before. After that, I realised that we had to tone down the game. We made it more linear."

After some adjustments to Nebulus' difficulty curve had been made, Hewson went on to publish John's game in time for Christmas and to send it for review, where the highly-original C64 platformer was met with critical acclaim. John's Spectrum conversion was equally well received, although its limitations frustrated the designer. "I remember it reviewed very well in the Newsfield magazines," John notes. "The C64 game had one of the highest marks they had ever given. I spent about a month on the Spectrum version; I was disappointed because there was no way of getting more colour."

In addition to the Spectrum Nebulus, John subsequently coded highly-rated 16-bit versions in very short order, although this had not been the designer's original intension. "I did the ST and Amiga versions, but Hewson had originally contracted a porting house based in Leeds. They were doing it for about six

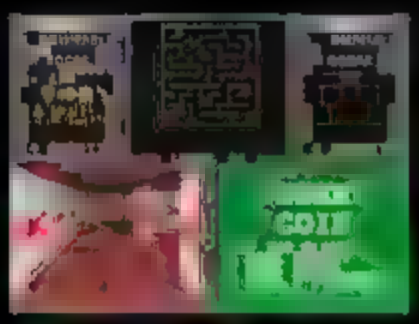
» Although sluggish, Chris Woods' Amstrad Nebulus conversion perfectly replicates the original's gameplay.

months, and I remember we went up to see them, and it was obvious to me that they didn't have a clue what they were doing. At the time, I was doing Eliminator on the ST, but I was so angry that I decided to convert Nebulus myself. I think I converted it in two months. Because I'd done Eliminator, I had all the tools. And I still had the maps from the original game."

A number of conversions to other systems were also produced – although Nebulus was renamed Tower Toppler, Castelian and Kyorochan Land for the US and Japanese markets, which is something that John has since come to terms with. "I think I helped out with the Amstrad version and the PC version," John recalls. "I can't remember much about the Archimedes version. The Nintendo versions were done by BITS Studios in London. I remember talking to them about a year later. Hewson got an advance from Nintendo – none of which had been passed on to me. The American versions were called Tower Toppler because of the publisher Triffix. The Japanese versions were changed to Castelian because Nintendo didn't like the name Nebulus. It probably bothered me at the time, but I couldn't care less now!"

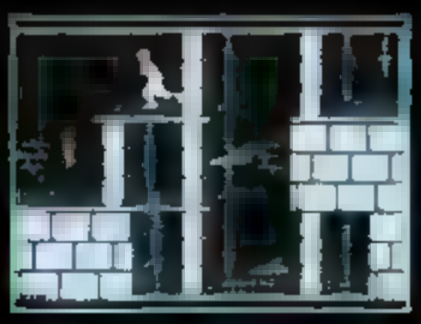
As for his current feelings towards his C64 original, John is philosophical about the limitations imposed by Nebulus' host hardware and humble about a classic that was largely down to his singular vision. "It's difficult looking back at old games, because so many things have come since. In terms of the size of the game, it's all you could do. I think I was just lucky; it was a case of happy accidents, really. It was just designing a game without thinking, and the fact that it was designed by one person who did the programming and also the art." ★

Many thanks to John for revisiting *Nebulus*.



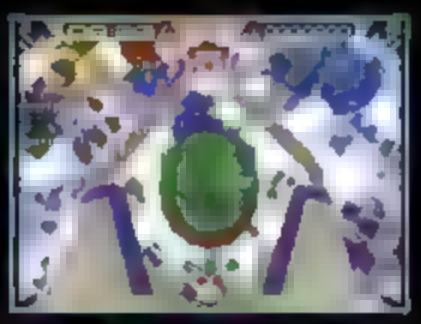
XYBOTS

■ Intended by developer Ed Logg as a 3D reimagining of his classic coin-op *Gauntlet*, *Xybots* was instead repurposed as a sci-fi shooter. Ed's game is rendered with sprites rather than polygons and rotation is limited to 90-degree turns, despite those limitations *Xybots* still helped to lay the foundations for the deluge of first-person shooters that followed.



PRINCE OF PERSIA

■ Quite how Jordan Mechner coaxed an Apple II into depicting realistic animation is anyone's guess, but even today, *Prince Of Persia*'s visuals are disconcertingly lifelike. The acclaimed developer's technique involved tracing frames of old movies – and film of his own brother running and jumping – and then adapting these tracings into sprites.



JUMPING FLASH!

■ An early polygon platformer, although *Jumping Flash*'s real innovation lies in its protagonist's mile-high jumps. The novelty of Robbit's aerial stunts is that while leaping he changes his viewpoint to look downwards instead of forwards, which allows him to target foes to long-distance stomp or blast – while additionally inducing giddy euphoria in the player.

VIB-RIBBON

■ Typically highlighted for its musical (rather than graphical) attributes, NanaOn-Sha's cult rhythm game is easily as visually novel as it is aurally inventive. *Vib-Ribbon*'s surreal graphics are best described as animated line drawings that are gently panned around as the player tries to overcome obstacles which are determined by their chosen soundtrack.

COLLECTING Code Masters

The range of tape games are proving popular with collectors today. Martyn Carroll looks at their appeal and reveals the coveted releases

COLLECTOR Q&A

Budget game fan Guy Black owns hundreds of Codemasters titles...

What are your reasons for collecting Codemasters titles?
I started collecting for the Spectrum about 15 years ago. I used to download games from the World of Spectrum website, but none of the Codemasters games are available for copyright reasons. This inspired me to start picking up the odd game from eBay. Before I knew it, I was going after a complete set.

Which 8-bit formats do you collect for, and how close are you to getting full sets?
I have a full set of Codemasters games for the BBC/Electron, Commodore 16, Atari 8-bit and MSX. My Spectrum set is one tape (*Sergeant Seymour Robotcop*) and one disk (*Rock Star Ate My Hamster*) away from completion. I've just recently started grabbing a few tapes for the Amstrad CPC as well, and have around 30 so far.

In your experience, which are the rarest Codemasters titles, and what's the most you've spent to secure certain games?
Prices have been going through the roof for some games. The rarer titles are some of the later Spectrum games that were released in 1992-1993, towards the end of the format's commercial life. *DJ Puff* is particularly hard to find, along with a couple of the Seymour games. Myself, I paid less than a tenner for *Grell & Fella* a few years ago. I paid £35 for *Stuntman Seymour* last year and I think the most I've paid is £50 for the CD Games Pack. Although I suspect if I find a copy of *Sergeant Seymour* or the disk version of *Rock Star* for the Spectrum, my wallet may take a beating.

A small selection of Guy's almost complete Spectrum set

Fans are naturally drawn to the Dizzy games, but are there any other Codemasters games you would recommend collecting?
I really like the Seymour games and think they are up there with the Dizzy franchise, and finding the rarer titles can be both fun and frustrating in equal measure. I used to buy quite a few of the Quattro packs when I was younger. They were a good way of getting four games for little money.

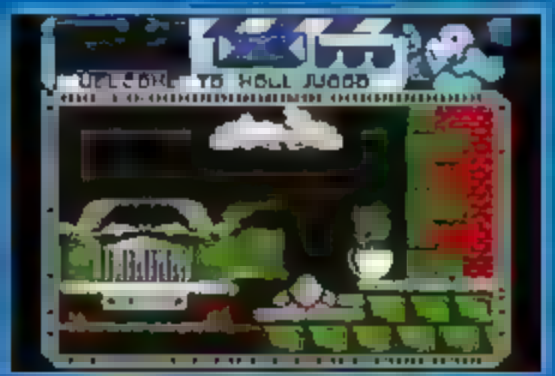
For those looking to start collecting Codemasters, what would you suggest are the best ways to acquire them?
There's a lot of interest out there in Codies games. Look for bundles on auction sites and check out some of the groups on Facebook. There are many collectors in those groups who buy bundles of games and sell off their duplicates at very reasonable prices. There's a very friendly community of collectors out there who really like to help each other out.

Which other software ranges would you recommend as good ones to collect?
I love collecting budget re-releases. I rarely bought full-price games as a young lad, so have been collecting Hit Squad, Kixx and Mastertronic titles for years and almost have full sets of each. They are generally cheap to pick up and take up little space, being single cassette cases.

A Some of Guy's budget re-releases that complement the standard, single jewel case titles

The Oliver twins were extremely prolific on the Codemasters label. This is their rather entertaining kart racing simulation

The ubiquitous 8bit Simulator was Codemasters' first mega-hit and set



time with the Seymour series

> **"The highest prices are typically reserved for the Spectrum versions"**

TOP TEN RARITIES

If you're collecting Codemasters then you'll need to dig deep for these releases

ROCK STAR GOES BIZARRE!

1988

■ This special version of *Rock Star Ate My Hamster* was created for a promotional competition that ran in *The Sun* newspaper. The game featured unique content and just ten copies were produced for the lucky winners. A copy of the Spectrum version popped up on eBay in July 2016 and went for £1,025. If another appears, it's likely to top that, with speculation that it may hit £200.

CD GAMES PACK

1989

■ The novel compilation featured 30 games on a CD-ROM that could be loaded into your computer via a standard CD audio player. It originally retailed for £20 and these days it will fetch around three times that amount – although only if it comes complete with the data transfer cable, loader tape and manual. It's common to find examples with bits missing, typically the cable.

DIZZY PRINCE OF THE YOLKFOLK

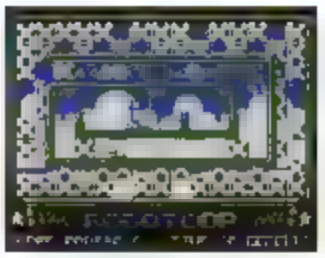
1991

■ The sixth game in the series originally debuted on the 1991 collection *Dizzy's Excellent Adventures*, and despite the promise that it was exclusive to the pack, it was released as a standalone title in 1992. This short and sweet adventure now fetches £50-70 on the Spectrum. Its immediate predecessor, *Spellbound Dizzy*, is also a target for collectors and commands a similar value.

SUPERSTAR SEYMOUR

1992

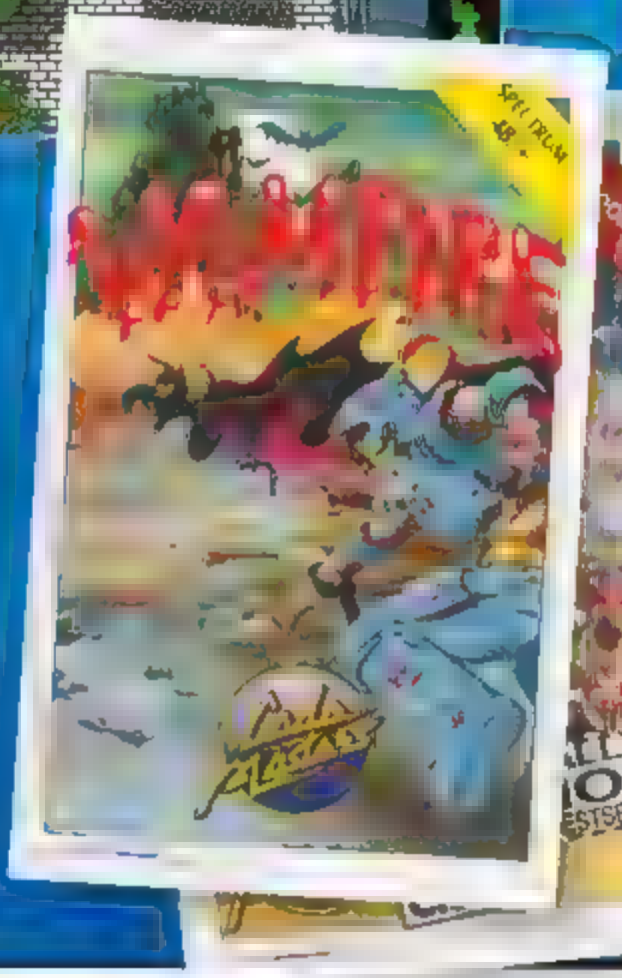
■ Playing second fiddle to Dizzy but still a draw for collectors, the five Seymour games were gathered together for this compilation that was sold in the run-up to Christmas 1992. It's typically worth £30 and upwards these days, particularly if the original poster and collectable cards are included. That may sound expensive, but it's certainly cheaper than collecting the individual releases.



SERGEANT SEYMOUR ROBOTCOP

1992

■ As with *Prince Of The Yolkfolk*, this first appeared on a compilation (*Superstar Seymour*) before being released separately. This doesn't appear in trading circles too often, so it's difficult to gauge its current value, but it's certainly rare and would set you back £60 minimum. This is for the coveted Spectrum version, of course – you could snap up the other versions for less.



SEYMOUR STUNTMAN
1992

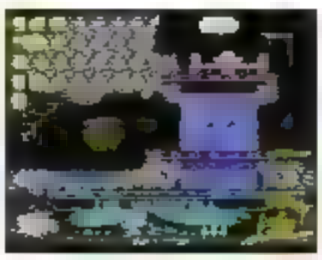
■ Of the five Seymour games, this and *Sergeant Seymour* are the ones that attract the most attention from collectors. This platformer appears on eBay from time to time and its price just keeps going up. In the past six months the Spectrum version has gone for between £89 and £113. This range is probably a good price guide, but don't be too surprised to see it creep up to £120 in the near future.

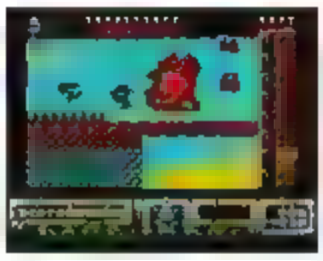
GRELL & FELLA
1992

■ Another late era release that most gamers will be unfamiliar with, but Codies collectors will know all about this one as it's on many a 'most wanted' list. This cartoony adventure (which is actually titled *Grell & Fella* in-game) doesn't come up for sale regularly and when it does, you can expect it to go for £80-120 on the Spectrum. A C64 version was developed but not released at the time.

CRYSTAL KINGDOM DIZZY
1992

■ The final Dizzy game for 8-bit computers broke the budget trend and retailed at full-price when it was released in late 1992. This no-doubt affected sales and now Dizzy's seventh adventure is perhaps the most sought-after of the whole series. On a good day you may be able to bag the Spectrum version for around the £80 mark, but it has been known to go for up to £120 in the past.





DJ PUFF
1993

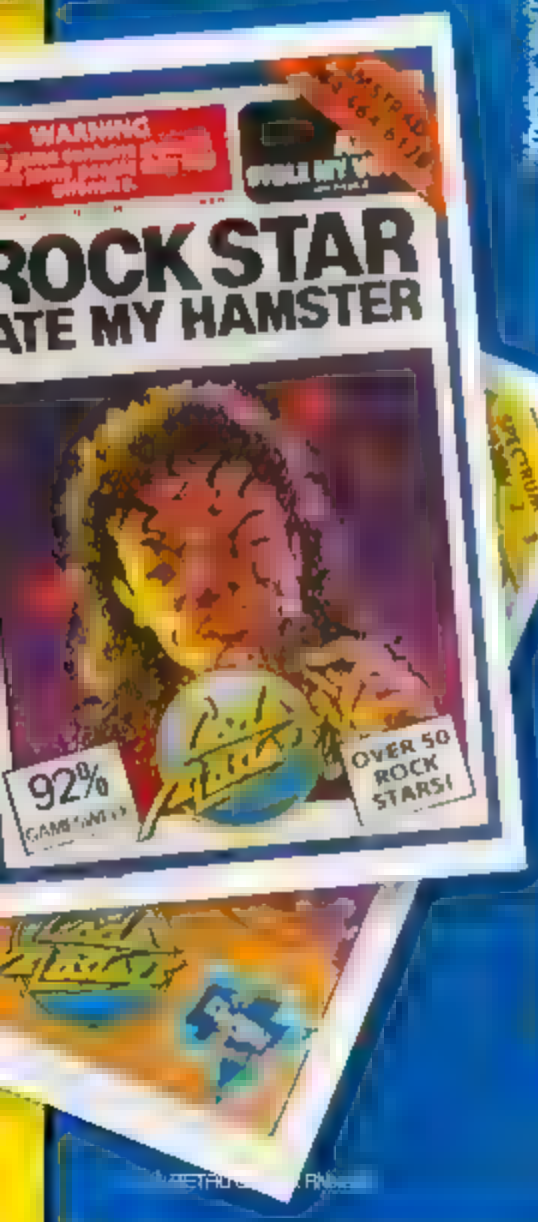
■ This sequel to *Little Puff* sneaked onto the Spectrum in 1993, almost three years after the original, and will have therefore escaped the attention of many gamers. It's a different story these days as many collectors are trying to track down a copy. It's hard to say how much the Spectrum version is worth, but it's possibly the rarest of all the regular Codies 8-bit releases. You're talking at least £120.

WRESTLING SUPERSTARS
1993

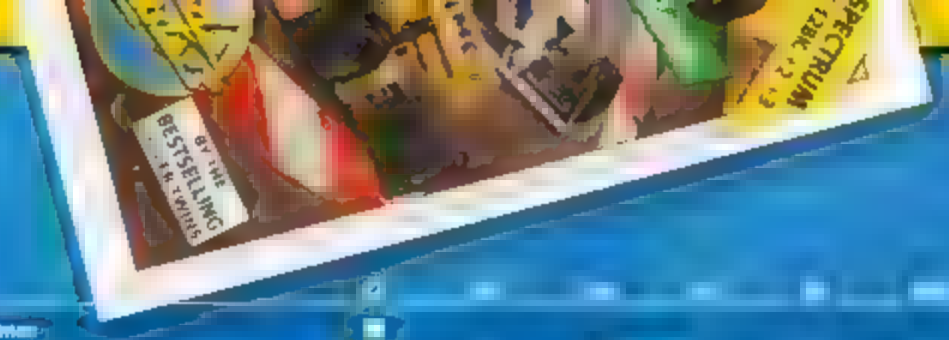
■ Codemasters leapt on the wrestling bandwagon with this cut-price, low-rent copy of Ocean's *WWF WrestleMania* games. Quality counts for now! However as this was one of the firm's last 8-bit releases, arriving in early 1993 and making it a target for collectors. It's not super rare, but when it does swap hands it can fetch up to £30, and sometimes even more if it's the Spectrum version.

CODEMASTERS CHECKLIST

1st Division Manager
3D Starfighter
4 Soccer Simulators
4 Soccer Simulators (Gold)
500cc Grand Prix
Advanced Pinball Simulator
Arcade Flight Simulator
Armourfile
ATV Simulator
Big Nose's American Adventure
Bigfoot
Blade Warrior
BMX Freestyle
BMX Simulator
BMX Simulator 2
Bounty Hunter
Brainache
Bubble Dizzy
Captain Dynamo
Cartoon Collection
CD Games Pack
Championship Jet Ski Simulator
CJ In The USA
CJ's Elephant Antics
Cosmonut
Crystal Kingdom Dizzy
Cue Boy
Danger Zone
Death Stalker
Defender Light Force
Dizzy
Dizzy Collection
Dizzy Down The Rapids
Dizzy Panic
Dizzy Prince Of The Yolkfolk
Dizzy's Excellent Adventures
DJ Puff
Fantasy World Dizzy
Fast Food
Frankenstein Jnr
Fruit Machine Simulator
Fruit Machine Simulator 2
Ghost Hunters
G-Man
Grand Prix Simulator
Grand Prix Simulator 2
Grell & Fella
Guardian Angel
Hit Squad, The
International Rugby Simulator
Italian Supercar
Jet Bike Simulator
Kamikaze
KGB Superspy
Kwik Snax
Lazer Force
Magicland Dizzy
Mega-Hot
Miami Chase
MiG 29 Soviet Fighter
Mission Jupiter
Monte Carlo Casino
Moto X Simulator
Mountain Bike 500
Mr Angry
Murray Mouse Supercop
Necris Dome
Ninja Massacre
Oli & Lissa 3
Operation Gunship
Paris To Dakar



Phantomas
Poltergeist
Prince Clumsy
Pro Boxing Simulator
Pro Golf Simulator
Pro Powerboat Simulator
Pro Skateboard Simulator
Pro Tennis Simulator
Professional BMX Simulator
Professional Ski Simulator
Professional Snooker Simulator
Pub Trivia Simulator
Quattro Adventure
Quattro Arcade
Quattro Cartoon
Quattro Coin-Op
Quattro Combat
Quattro Fantastic
Quattro Fighters
Quattro Firepower
Quattro Megastars
Quattro Power
Quattro Racers
Quattro Skills
Quattro Sports
Quattro Super Hits
Race Against Time, The
Rallycross Simulator
Red Max
Robin Hood Legend Quest
Rock Star Ate My Hamster
Rock Star Ate My Hamster (Gold)
SAS Combat Simulator
Sergeant Seymour Robotcop
Seymour Goes To Hollywood
Seymour Stuntman
Sky High Stuntman
Slicks
Slightly Magic
Smash 16
Soccer Pinball
Spellbound Dizzy
Spike In Transylvania
Star Runner
Steg The Slug
Street Gang Football
Strykar In The Crypts Of Trogan
Super All-Stars
Super Bike TransAm
Super Dragon Slayer
Super Dragon Slayer (Plus)
Super G-Man
Super Hero
Super Robin Hood
Super Seymour Saves The Planet
Super Stuntman
Super Tank
Superstar Seymour
Tarzan Goes Ape
Terra Cognita
Thunderbolt
Tir
Tornado ECR
Transmuter
Treasure Island Dizzy
Turbo Chopper Simulator
Turbo The Tortoise
Twin Turbo V8
Vampire
Wacky Darts
White Heat
Wild West Seymour
Wizard Willy
Wrestling Superstars



Titles in italics are compilations

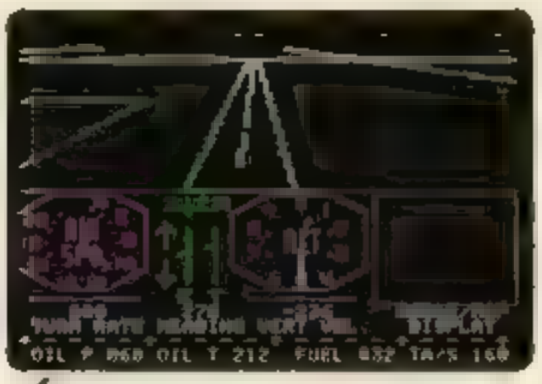
TOP 20 Apple II GAMES

The Apple II was designed for games – creator Steve Wozniak wanted it to play Breakout. But far richer Apple II gaming greatness abounds, as Craig Grannell reveals...

Taipan!

■ PUBLISHER: **Avalanche Productions**
■ GENRE: **Strategy/trading sim** ■ YEAR: **1982**

Essentially a watery Elite on the high seas of the 19th Century, Taipan has you start life with cash and a debt – or a boat with guns but no money. You then sail between seven ports, taking on pirates for their booty and dealing in silk, arms and opium. It's all very simple and text-oriented, but still rather tense when facing off against 20 pirate ships, or worrying your illicit cargo might be confiscated.



Flight Simulator

■ PUBLISHER: **subLOGIC**
■ GENRE: **Simulation** ■ YEAR: **1979**

You won't swoop over photorealistic landscapes in Flight Simulator – instead you get a limited map with basic wireframe graphics. But Bruce Artwick's game nonetheless deserves a place on this list through kicking off a series that continues to entrance. And if you fancy something a bit more advanced on the humble Apple II, Flight Simulator substantially ramps up the complexity and visuals.

3D Docking Mission

■ PUBLISHER: **The Elektrik Keyboard**
■ GENRE: **Arcade** ■ YEAR: **1978**

In the early days of the Apple II, games typically weren't nuanced. Even so, many were creative, as Christian Oberth's 3D Docking Mission proved. The aim is simple: guide your craft through an asteroid field and dock with a mothership. But matters are complicated by limited fuel, comets inexplicably streaking towards you, inertial movement and a split screen view that forces you to think in 3D.

Raster Blaster

PUBLISHER: BudgeCo ■ GENRE: Pinball ■ YEAR: 1981

In an era of realistic pinball titles such as Pinball Arcade, hyper-realistic animatronic fare like Zen Pinball, and creative takes on pinball like PinOut and INKS, Raster Blaster looks positively archaic. But in the history of pinball titles – and also Apple II games – this Bill Budge-designed table is hugely important.

Prior to Raster Blaster, videogame pinball had a tendency to either get smashed into other genres – such as Gee Bee's weird mash-up of pinball and Breakout – or end up not looking or playing like pinball at all, as evidenced by the risible Video Pinball on the Atari.

Raster Blaster was different. Here was a title that – within the limitations of the Apple II's hardware – wasn't trying to be an arcade game that happened to include flippers and bumpers. This was a simulation.

The table was broadly inspired by real-world table Firepower, and was oriented vertically. Although that resulted in over half the screen being given over to high scores and logos, this added to the realistic nature of the table. Mostly, though, Raster Blaster impressed due to the feel of the game. Yes, modern eyes will spot clear shortcuts in the game's physics, and some odd ball movement here and there, but Raster Blaster sat head and shoulders above its contemporaries. And even today, Bill's game plays a decent game of pinball that doesn't feel too far removed from the real thing.

Post-Raster Blaster, videogame pinball was changed forever, and gamers soon got to enjoy the likes of Night Mission (by Bruce Artwick) and David's Midnight Magic. Bill himself pushed the pinball genre even further, eschewing the idea of further standalone tables and enabling players to craft their own in the ambitious – and rightfully highly-acclaimed – Pinball Construction Set.

PINBALL WIZARD

Bill Budge on the Apple II and Raster Blaster

What was it that originally attracted you to the Apple II?

Colour. That was the thing that swayed me from buying a TRS-80, or one of the other small business machines coming to market back then. But it took me about two months to get hold of one – there weren't many resellers in those days!

How did you find the machine for programming games?

Architecturally, the Apple II was very simple and open, so programmers could do things that probably weren't foreseen by Steve Wozniak. But audio on the system was extremely primitive – it was really hard to make sounds because there were no timers or interrupts. Still, the Apple II did at least have the most reliable floppy drive of those early home machines. The ones on the C64 and Atari were a nightmare.

What was the genesis of *Raster Blaster*?

Oddly, I was never really a pinball player before I started that game. But I was working at Apple in those days, and my colleagues were obsessed with pinball. I'd go to lunch with them, and they explained how pinball worked. Since I wanted to make the most amazing looking game I could on the Apple II, pinball seemed like the ideal fit.

Presumably, you didn't find inspiration from other videogames in those days?

Not really. There were a few other pinball games around at the time, but they had low resolution graphics and limited physics. And I'd, in fact, already made a simple pinball game by then, using code and techniques from my version of *Pong* on the Apple II. My biggest inspiration was Williams' *Firepower* – one of the all-time great pinball tables – on which I based the *Raster Blaster* table layout.

What technical challenges did you encounter when making the game?

The Apple II couldn't multiply natively or do floating point math. So a lot of effort went into using 16-bit fixed-point numbers to do things like update position and velocity, and rotate vectors when balls hit something at an angle. I used table lookup to calculate sines and cosines for rotating things in two dimensions.

Collision detection was also tough, and involved me constructing, by hand, a database that for each row of pixels on the screen listed the wall properties – material, position, and rotation – relative to the x-axis, which was constantly compared to the ball's position. My hand-coded table scheme probably accounted for half of the effort to build *Raster Blaster*!

Mystery House

■ PUBLISHER: On-Line Systems
■ GENRE: Text adventure ■ YEAR: 1980

This game's cover art might put you in mind of Scooby Doo, but there are very real horrors lurking within this mansion. After venturing inside (using GO DOOR, due to the clunky early Eighties parser), you find yourself locked in, alongside several others. Soon, the number of people starts diminishing, and you find bodies lying around, having been dispatched in various nasty ways.

Developed by husband-and-wife team Ken and Roberta Williams, Mystery House was a pioneering adventure, in providing imagery alongside the text. Often, solutions are based around what you see rather than just what you read. And although Mystery House isn't that sophisticated and is full of dead-ends, it's a fascinating bridge between Colossal Cave Adventure and the graphical adventures that would become prevalent in the PC era.

The Bilestoad

■ PUBLISHER: Datamost ■ GENRE: Fighting ■ YEAR: 1982

It's fair to say this Marc Goodman combat game is an oddball. Without a great deal of other fighting games to draw on, Marc decided on a top-down viewpoint. So rather than the subsequently typical side-on approach, The Bilestoad has you duff up opponents from above.

The controls are quite involved, and take time to get to grips with. Along with keys for turning, stopping and walking, you can move your axe and shield independently. The arenas you fight in add further complications by way of teleporters and speed-up discs. If it all gets a bit too much, pit two 'robots' against each other and settle back to enjoy the fight.

Aztec

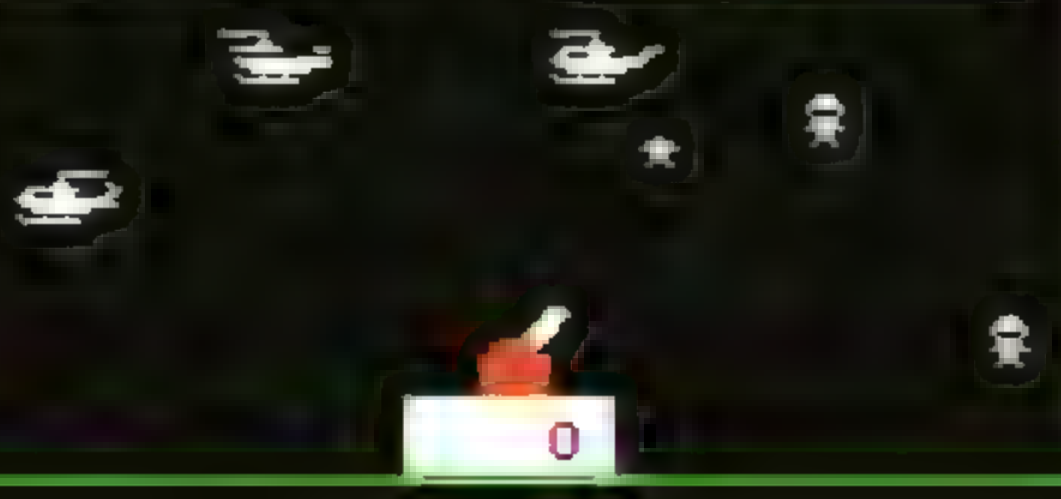
■ PUBLISHER: Datamost ■ YEAR: 1982 ■ GENRE: Platformer/adventure

There's a lot going on in Aztec. It resembles yet another side-on arcade adventure, with a fedora-wearing kleptomaniac looking to 'liberate' bling from a deadly tomb. But the controls are, frankly, a bit mad – the system has separate keys for everything from running and climbing stairs to drawing a gun and rummaging around in a chest. Wrap your fingers around that lot and you still have to contend with monsters and environmental issues – clambering up garbage, blowing up walls, and not drowning in water. And even if you succeed in your quest, a repeat's not assured – the tomb's randomly generated every time you play.

Sabotage

■ PUBLISHER: On-Line Systems ■ GENRE: Shoot-'em-up ■ YEAR: 1981

You might well take a look at Sabotage and think "That looks an awful lot like Paratrooper". And you'd be right. This game by Mark Allen has you control a gun turret at the foot of the screen while helicopters scoot about, dropping paratroopers. Should four reach the bottom (with you having likely dispatched many of their comrades), they form a human pyramid, leap aboard the turret and blow it up. Which all seems a bit elaborate and wasteful as a means of attack, but this is the world of videogames. And as for Paratrooper, it was Sabotage that came first.



Bolo

■ PUBLISHER: Synergistic Software
■ GENRE: Shoot-'em-up/maze ■ YEAR: 1982

Sparse is probably the word that first comes to mind on entering Bolo's strange universe. On selecting a difficulty level and density, the game generates a simple maze containing enemy bases. Your aim is to trundle about, blow away enemy craft and obliterate each of the bases by chipping away at its walls before firing on its core inexplicably, blowing up a base boosts your fuel reserves. Handy.

But what sets Bolo aside from most old-school arcade games is the controls. You can fire while you're reorientating at speed, and you can also turn the turret and shoot at an angle to your current direction of movement. That precision particularly pays dividends on higher levels, where previously sluggish enemies start moving as fast as you.

Choplifter

■PUBLISHER: Brøderbund ■GENRE: Arcade ■YEAR: 1982

In 1980, arcade classic Defender introduced the idea of rescuing hapless civilians from a warzone while you blasted away at everything in sight. But its pyrotechnics and sci-fi trappings meant it always felt very much like an arcade game. By contrast, Choplifter – while entertaining and compelling – is comparatively bleak. You pilot a helicopter behind enemy lines, braving tanks and fighter jets, and blast buildings to free hostages. You must then land, grab as many hostages as you can, and make for safety. On each return, your enemy ramps up its defences, making subsequent trips increasingly perilous.

You're not rewarded for blowing up enemies – the score simply lists hostages in your helicopter, those saved, and those that have perished. And should the last of your choppers be shot down, it sits at the bottom of the screen in flames as the game states "The End".

FLYING HIGH

Dan Gorlin recalls his Apple II days creating classic title Choplifter

Why did you start working with the Apple II, and how did you find using the machine?

I started working with it because I had one! My grandfather loaned me his – when I was selling a house, and, in all honesty, I wasn't really a fan. I found the machine very primitive. But I did like the fact you had complete control over the timing, as you could polish that aspect of whatever you were programming perfectly.

How did you start working on Choplifter?

When I was selling that house, I started goofing around with the Apple II – moving things around the screen. I'd been interested in helicopters, so I'd got one on the screen, and was trying to get the feel of flying right. In the end, I had to cheat with the physics to make it fun, but I think I succeeded in my aim of making it feel like a natural thing to play with for the player.

The key element of Choplifter is rescuing hostages. How did that idea come about?

This kid working on my car was a big fan of *Defender* and suggested I should add some people to rescue. So I walked to the nearest place with a *Defender* cabinet, liked the rescue element, and started adding all kinds of little bits to my game. And at some point, I realised I could make some money out of it!

This was around the time of the Iran hostage crisis. Did that play into the topical nature of the game?

That was big in the news at the time and probably influenced the hostage aspect of the game – at least subliminally. But I wasn't really thinking too much about it, and that probably resulted in *Choplifter* being fun rather than overly serious.

Even so, there is an earnest undercurrent in the game, not least with the score, which merely lists survivors and deaths.

I don't like the idea of a score when what you're really trying to do is tell a story. So I didn't want you racking up points like in *Defender*. All that was important was knowing how many of the hostages got home safely. To me, the number of planes and tanks you blew up getting your people home was irrelevant, and so I didn't keep track of that. The only reason the enemies were there was to push the player through providing them with challenges as they played the game.

Airheart

■PUBLISHER: Brøderbund
■GENRE: Arcade ■YEAR: 1986

This ambitious 3D arcade title finds you zooming about a wacky world blowing up robots and grabbing mystical objects that allow you to enter a final battle. It was later enhanced significantly for 16-bit machines as Typhoon Thompson In Search For The Sea Child.

Karateka

■PUBLISHER: Brøderbund
■GENRE: Fighting ■YEAR: 1984

Jordan Mechner's debut turned out to be a cinematic take on fighting games. Along with all the brawling, cutscenes are peppered throughout showing the antagonist ordering his minions into battle, and the hero's love awaiting rescue.

Captain Goodnight And The Islands Of Fear

■PUBLISHER: Brøderbund
■GENRE: Arcade ■YEAR: 1985

This Bond parody side-scroller comes with a healthy gollop of shark. Captain Roscoe Buzz Goodnight battles his way to a doomsday device by way of foot, jet, jeep, tank and submarine in a series of tough arcade sequences.

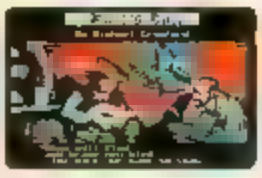
SunDog: Frozen Legacy

■PUBLISHER: FTL Games
■GENRE: Space exploration ■YEAR: 1984

Although joystick controlled, SunDog feels like a precursor to PC based mouse-oriented strategy fare. As Zeo you zoom about space, visit cities and trade. It's slow going, but an ambitious, engaging title.

The Bard's Tale

■PUBLISHER: Electronic Arts
■GENRE: RPG ■YEAR: 1985



This RPG classic started life on the Apple before being converted to many other systems. The emphasis on simple exploration, combat, and puzzles means that although it seems unsophisticated today, it's still worth playing.

5 Ultima I: The First Age of Darkness

PUBLISHER: Origin Systems GENRE: RPG YEAR: 1981

We could have included a later Ultima entry in this list, and if you're a fan of role-playing games, you should probably play them all anyway. But we're going for The First Age of Darkness on the basis it was one of the most influential titles to grace the Apple II.

The game dumps you in a mystical realm where an evil wizard's enslaved everyone. It turns out, that this villain has got hold of the suitably (if unimaginatively) named Gem Of Immortality, meaning he can't be killed as his minions go around getting all stabby. Your aim: end his rule. No pressure.

From a visual standpoint, Ultima was ambitious for a 1981 game, switching between top-down roaming views and first-person dungeons. But, mostly, Ultima is important for generating the language used in so many subsequent RPGs. By the time the third Ultima arrived, you could select a party, and delve into a turn-based combat 'battle screen' when scrapping. It and Ultima IV are usually cited as best-in-class on the Apple II; but, hey, we're **Retro Gamer**, so check out where it all began first.

DUNGEON MASTER

Ultima creator Richard Garriott fondly remembers his Apple II days

What was it that grabbed you about the Apple II?

I started out with a teletype terminal connected with an acoustic modem to a PDP11 in a neighbouring university's data centre. When the Apple II arrived, I was in wonder. Instead of invoking a command and waiting minutes for it to process, it could, in real-time, visually display to me all the fantasy worlds and other fantastical ideas I could think about to program. I immediately saw it as the key to the future – or my own future, at least.

How instrumental was the Apple II in *Ultima*'s creation?

I think without the Apple II, *Ultima* never would have existed. As much as I enjoyed what came before and the other computers around at the time, I found all those systems comparatively harder and less fulfilling to tear into than the Apple II. With the Apple II, you could dive right in under the hood and figure everything out. You could kind of keep the totality of it in your mind, and truly master the entirety of the machine.

How did *Ultima* come to be?

I was working in a computer store, and the owner noticed me working on a game in the back, *Akalabeth*. I'd converted it from a teletype version, but added first-person corridors, so you could see them from your point of view. The guy running the store said it was better than anything else out there and that should publish it – and so did. It then came to the attention of national distributors, but really *Akalabeth* was a technical demo. There's no story, no winning and no end. But it put me through college, and that was when I started the first *Ultima* game. I thought that if a game I never intended anyone to see – much less pay for – could put me through college, surely I could start over and do a much better job with one designed for public consumption.

What's your relationship with the Apple II today?

As PCs took off and the Apple II became antiquated, I didn't pay much attention to mine. But then I was knocked by a keynote speech – saw that said these machines were 'disappearing' into obsolescence, meaning the best games could be lost and forgotten. I realised I had no way to look at my *Ultima* games or *Akalabeth* – these years were lost to me. More recently, of course, emulation has closed the gap, but after that conference, I worked with my Apple IIs, and went on a buying binge for spare parts, to ensure I could keep them operational indefinitely.

The Oregon Trail

■PUBLISHER: Broderbund ■GENRE: Simulation ■YEAR: 1979/1985

Although primarily an educational title, The Oregon Trail also happens to be one of the least forgiving classic-era Apple II games you're likely to play. It finds you regularly making life-or-death decisions. In essence, it's an early take on resource management – and it's also the only game of its day that abruptly wipes out one of

Trail being widely associated with the Apple II, it in fact started life on a mainframe computer.

the game available on the Minneapolis Public Schools time-sharing service, opening it up to many thousands of students – revolutionary

Apple II in 1979 as Oregon, and then released and revamped in 1985 as The Oregon Trail, wit

hunting and shooting elements

Beyond Castle Wolfenstein

■PUBLISHER: Muse Software
■GENRE: Stealth ■YEAR: 1984

No, not that Castle Wolfenstein, although this Muse classic served as inspiration for the hugely influential FPS 3D shooter. Here, you're sneaking around a Nazi bunker aiming to locate a bomb, dump it outside the room where Hitler's holding a meeting, and legging it before the thing explodes. Like its similarly excellent and pioneering predecessor Castle Wolfenstein, this game marries action and strategy. Sure, you can shoot enemies, but doing so wastes ammo. You can alternatively pull a gun and pilfer a guard's kit, or even stab a soldier, wear their uniform, and saunter about in disguise

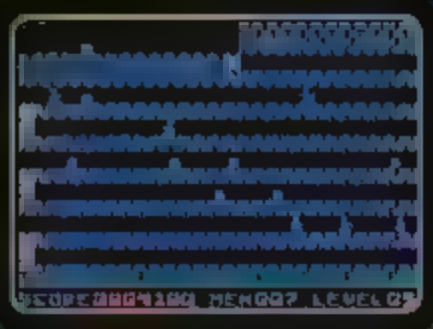
Lode Runner

■PUBLISHER: Broderbund ■GENRE: Platformer ■YEAR: 1983

Much like The Oregon Trail, Lode Runner's history goes beyond the Apple II. The game began life on the Commodore PET as a project by creator James Bratsanos, referred to as being about the "beauty of the algorithm". In essence, his system was designed to be thrown at any designed level rather than being about pure gameplay. But even this early take was recognisably Lode Runner – platforms and ladders; and a hero chased by enemies you could trap by digging holes left or right of your current position.

At university, the game was converted to VAX, whereupon Doug Smith got involved – and at the insistence of his nephew rewrote the game for Apple II.

After buying the rights from James, Doug's first crack at the Apple II version, Miner, was rejected by Broderbund. But a major revamp with superior controls and pixel-level motion resulted in the classic game we know and love today.



1 Prince of Persia

PUBLISHER: Broderbund
GENRE: Platformer YEAR: 1989

Several games on this list are from the early days of the Apple II, when creators were first experimenting with the system. But it's hard to see how any title could have topped our list other than Jordan Mechner's platform adventure. It was, without doubt, a late entry to the Apple II, not finding release until 1989, by which point even Jordan himself admits the platform was dying. His reason for sticking with it? "The Apple II was a platform I understood – a machine you could push," he explains. "And that was satisfying… It was a lovely machine."

Taken at face value the component parts of Prince Of Persia don't scream classic. The plot is hackneyed, involving a heroic protagonist battling his way to defeat an evil wizard. And the gameplay is, at its core, a conventional platformer, where you leap about, throw switches to open doors, and try to not end up impaled on spikes some lunatic's left sprinkled about the place.

It's a good thing, then, all the great stuff happens on the screen. In short, Prince Of Persia is all about the execution. Everything within the game has been honed to perfection. The visuals are superb, with rotoscoped animation that affords the protagonist and other characters a lifelike fluidity. The introductory animation nudges the game into cinematic territory, and composer Tom Rettig even managed to get a decent score out of the Apple II's woefully-underpowered sound chip.

In terms of gameplay, Prince Of Persia similarly shines. Whereas many retro platformers are crude in terms of controls, bar the odd bit of inertial movement, Prince Of Persia's hero can run, duck, leap across gaps, pick his way across the floor and hang from ledges. You need to know precisely when to make use of an action, and soon come to realise the entire game's effectively one massive puzzle, relentlessly trying to off the hero.

Then there are sword fights that punctuate the platforming action – and puncture the hero, if you're a bit rubbish. There's a clever mix of infinite lives and 60-minute timer – the princess will be glancing nervously at her timepiece if you keep getting killed, given that each death plonks you at the start of the current stage. And then there's a section where you leap through a mirror only to be confronted by an evil apparition twin. Now that kind of thing definitely didn't happen in the likes of Impossible Mission.

FIVE REASONS IT'S GREAT

1 Like *Karateka*, *Prince Of Persia* is infused with a distinctly cinematic feel, not least with its animated filmic intro.

2 From huge leaps to little wobbles on hitting unstable ground, the protagonist's movements add a sense of realism to the game.

3 Nuanced controls give you a fighting chance against the game's pixel-perfect demands: you can leap, take careful steps or hang from platforms.

4 The game's platform larks and exploration are punctuated by swordfights. These look great and also ramp up the tension.

5 The Apple II's sound chip wasn't a force to be reckoned with, but this game actually has a decent score.

MAKING A MASTERPIECE

Jordan Mechner talks us through the development of Prince Of Persia

Tell us about the origins of *Prince Of Persia*.

I loved the first ten minutes of *Raiders Of The Lost Ark*. That kind of running, jumping action where you feel like the hero is in great danger and escapes by the skin of his teeth was what I wanted to recreate. I wanted to bring that excitement to gaming, to the Apple II platform. It was a machine I was really getting to grips with and it was the most natural thing for me – as an amateur animator, film fan and gamer – to try to do.

Tell us about the rotoscoping techniques.

Rotoscoping was a technique I first used in *Karateka* and it's basically something animators have been doing since the very early days of film. For *Prince Of Persia*, I videotaped my brother running, jumping, and doing lots of other things, then went through a process to select frames and transfer them in silhouette to the computer. The hard part then, as now, was to integrate the animations into the game in a way that struck the right balance between responsive controls, and fluid animations that look good visually.

Why choose an Arabian theme for your game?

The *Prince Of Persia* story came out of a desire to find a distinctive setting that wasn't already familiar from other games. A lot of games had sci-fi or medieval, sword-and-sorcery settings, but the *Arabian Nights* theme hadn't been done in a long time – this was a few years before Disney's *Aladdin*. And it was a good fit for the kind of character I wanted to create – your basic plucky underdog who's totally outnumbered and outgunned.

Why did you include sword fighting sections?

I wanted to get that back-and-forth, classic Hollywood-sword fighting feel, where the blades clash high and low in a kind of balletic rhythm. The model was the climactic fight, in the 1938 film version of *Robin Hood*, between Errol Flynn and Basil Rathbone. If you play the DVD in freeze-frame, you can spot the animation frames I used for *Prince Of Persia*.

Was there anything you planned that didn't appear in the final game?

Part of my original plan for *Prince Of Persia* was to include the level editor on the disk, so players could create their own *Prince Of Persia* levels. I spent months creating a full-featured level editor – but in the end, the only person who got to enjoy using it was me.

Were you pleased with how it turned out?

I think what surprised so many was the fact that the Apple II at the time was an old platform. By the time I'd finished *Prince Of Persia* in 1989, the computer was more than ten years old. I felt at the time – and I still feel this now – that the first *Prince Of Persia* definitely moved up and even surpassed the hopes that I'd had for the game in the beginning, when I first conceived of it in 1985. But at the same time I was really starting to see other games and other platforms that could go beyond it, technically, in terms of what it was capable of, so in that sense I felt like I was kind of trying to keep up with the market that was evolving even as I was programming the game.

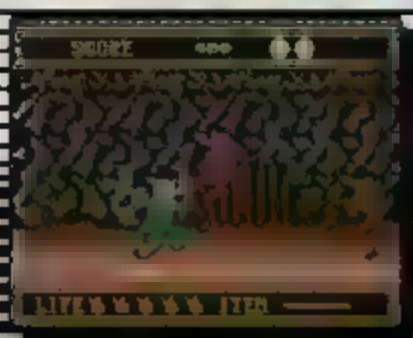
Were the ports crucial to the game's success?

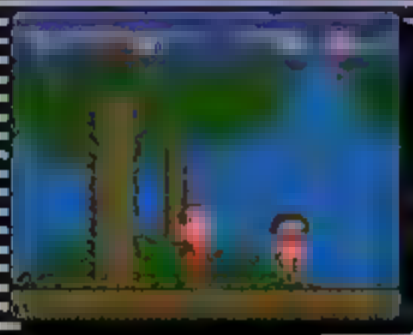
It's thanks to the various ports that *Prince Of Persia* is still remembered today. A few years later, the PC port was done by an internal Broderbund team with Lance Groody as programmer, and it took full advantage of what the PC could do including VGA graphics, sound and music. The Mac version went further, with different versions of the graphics for every type of Mac screen. The original version didn't sell many copies, because the Apple II was a dead platform by the time the game released in 1989.

PC Engine

Import Icon

As NEC's diminutive console reaches its 30th anniversary, we remember how its combination of exoticism and arcade appeal gave birth to the market for import games. Join Nick Thorpe for a look back at this legendary piece of hardware.





"Turbo Technix – pilot Hercules allowed the original levels of Technix to burst into life on the Mega-CD" screenshot

"IF YOU HAD MONEY AND WERE A HARDCORE GAMER, THE PC ENGINE WAS THE COOLEST SYSTEM YOU COULD OWN"

Julian Rignall

Japanese console manufacturers didn't have an easy time of breaking into the European gaming market – but then, it can't be said that they put much effort into it.

Unlike in North America, where Nintendo and Sega had dedicated operations, the NES and Master System were introduced into European territories by third-party distributors in 1987. The consoles occupied an awkward middle ground in the gaming market. The hardware was more capable than the 8-bit home micros, and competitively priced, but software was slow to arrive and cost as much as full-price games for the 16-bit computers.

So when the May 1988 issue Computer & Video Games featured a report on a tiny Japanese wonder-console capable of sublime arcade-perfect games, you'd have been forgiven for being sceptical – especially given that the author of the 'Mean Machines' column had a penchant for enthusiastic hyperbole. "Forget Nintendo and Sega, they are not even a spit in the ocean in terms of power and gameplay," Tony Takoushi gushed in his two-page feature introducing this technical marvel. "I have used all the superlatives in the past and yet none of them begin to be adequate when you come up against the most powerful console in the world." It's often said that if something sounds too good to be true, then it usually is. However, hype will always beat scepticism when gamers are concerned, and the seed was planted in the minds of British gamers – the PC Engine was something to watch.

Designed by Hudson Soft and manufactured by electronics giant NEC, the PC Engine actually lived up to the claims made about it. Roughly the size of three CD cases stacked atop one another, the machine could display sprites that were larger and more colourful than the other consoles, and it could display more of them. With six audio channels it delivered richer sound than the Sega and Nintendo machines, and the games came on thin cards. However, with no UK model available, players had to take Tony's word for it – and with that in mind, we wondered how he first came to witness the machine.

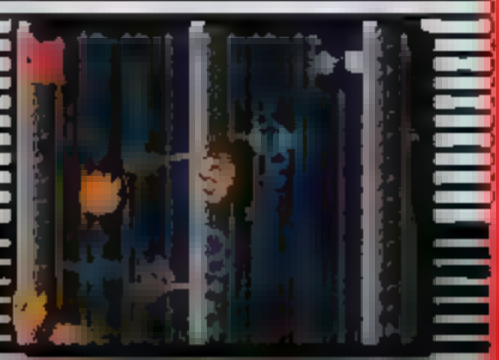
"I used to get games and consoles direct from Japan and the USA and review them for UK magazines in the early days when few (if any) others did so. It was expensive with phone calls and shipping but very exciting times," says Tony, remembering his writing days. "I saw the PC Engine in a Japanese magazine while I was working for Virgin Mastertronic and mentioned it to Frank Herman, one of the directors, who was about to go to Japan on business. He returned with one and a few games – an RPG, Drunken Master and a Namco platformer. Wow!" Despite the fact that the console was impossible to obtain in the UK, Tony continued to cover the PC Engine in his Mean Machines sections. "I was very lucky the editor Tim Metcalfe was awesome and understood the excitement and impact of these reviews, and getting people know what was coming (hopefully) to our shores."

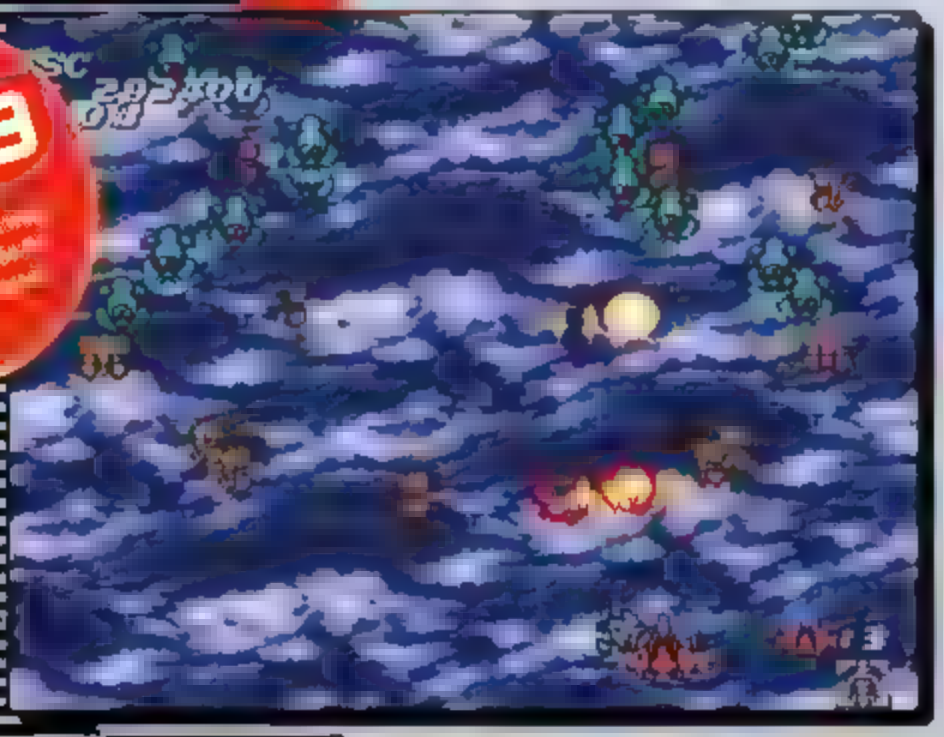
The decision to run with the coverage despite the machine's lack of an official presence in the UK proved to be the right move. "The response was insane, everyone wanted to get it but NEC had no plans to release in the UK, they were looking to a US launch was best I heard. CVG got inundated with mail asking for more info and reviews," remembers Tony. However, not everybody welcomed the attention that the console was gathering. "I decided to call NEC and see if they were going to release/confirm arrival of the ▶

11 YEARS, 1 MONTHS & 4 DAYS

A special adaptor was needed for multiplayer games like Bomberman on the PC Engine, which allowed five players to join in

PC Engine





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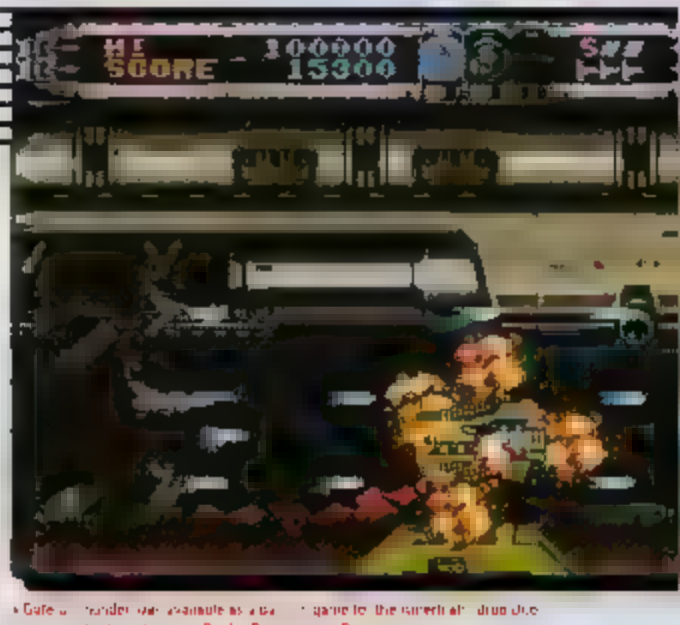
▶ PCE in Europe. I eventually got through to the relevant person at NEC in Europe who said, 'So it was you that did the review... I'm seriously thinking about putting a contract out on you for the heat you've caused us!'"

Like the public, members of the press quickly started paying attention to the new machine based on the coverage it received in CVG. The Games Machine featured a PC Engine cover story in issue eight, which included repeated references to the Mean Machines coverage, and ACE also began to cover the machine. The attention from multiformat magazines was expected, but even the dedicated ZX Spectrum magazine Crash would find itself giving the PC Engine a few pages before the Eighties were over. The console was simply too exciting to ignore.

Zzap!64 editor Julian 'Jaz' Rignall was also paying attention. "I first heard about the PC Engine in early 1988 through Computer & Video Games magazine's original Mean Machines column, which was written by freelancer Tony Takoushi. He was very enthusiastic about the system and its handful of games, and my interest was well and truly piqued by his hype," remembers the veteran journalist, who despite



Gate of Thunder was available as a launch game for the console's drug-dice action-platform adventure Bonk's Revenge and Bonk's Adventure.

being editor of a Commodore 64 magazine, was starting to be drawn away from the home computers. "At the time, I was seriously getting into consoles – I had both an NES and a Master System – and this new-generation machine sounded very promising indeed."

Julian moved to CVG during 1988, and by the end of the year he was a key part of the Mean Machines column – and with that move came his first chance to actually check out the PC Engine. "I persuaded CVG editor Eugene Lacey to let me expense a PC Engine for the office, and a week or two later it arrived." The experience wasn't quite what Julian had expected, however. "I was really excited, but unfortunately it came with just two games: Shanghai and Kato-Chan Ken-Chan. While the latter was quite amusing for its crude sense of humour, neither game blew me away. They were just okay."

So what was it that turned this opinion around? "A couple of weeks later we got hold of R-Type, and that was absolutely sensational," Julian explains. "I loved the coin-op, so getting the chance to play what felt like a carbon copy at home was quite the revelation. That game really showcased the PC Engine's potential, and immediately made me a huge fan of the system. Over the following months more really high-quality games were released, including Galaga '88, Legendary Axe, Alien Crush, Space Harrier and Dragon Spirit. All helped make the PC Engine – in my eyes at least – the single most desirable games machine of the period."

BEGINNER'S GUIDE

Here's a guide to what you'll need to know about the history of PC Engine software...

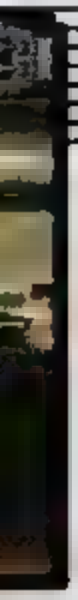
CARD
- 2-20 megabit capacity
- Region locked

CD
- Up to 650 megabit capacity
- Region-free

HuCARD
HuCard
300 GAMES

SUPER
SUPERGRAFX
5 GAMES

CD-ROM
CD-ROM
200 GAMES



"THE PERSON AT NEC SAID, 'SO IT WAS YOU THAT DID THE REVIEW... I'M SERIOUSLY THINKING ABOUT PUTTING A CONTRACT OUT ON YOU!'"

Tony Takoushi

As well as delivering a selection of unmatched arcade conversions, the PC Engine was breaking new ground with the introduction of CD-ROM technology. This was by no means cheap, but for your trouble you were able to play the best home conversion of the popular Capcom arcade game Street Fighter II Hkuriman Dayka was less accessible to non-Japanese audiences, but the heaps of speech and CD audio showed the possibilities of this high-capacity storage medium. In introducing this system, CVG also made a famous comparison. "I thought that it might be a good idea to show how small it was by including something in the shot that everybody could relate to. Fortunately, I'd just been across the road to Arkwrights, the local corner store, to buy some afternoon snacks, and just happened to have a packet of Skips at hand," remembers Julian. "We'd said numerous times that the PC Engine was diminutive, but that picture really helped readers understand just how truly tiny it was." Indeed, it captured the imagination of readers to the point that our own Editor Darran Jones still describes the console as being as big as a packet of crisps.

By this point, players had received about a year of PC Engine coverage and had their wallets primed and ready. "Judging by the mail we received, it seemed that many of CVG's readers were very excited about the PC Engine – which wasn't particularly surprising considering how incredibly enthusiastic we were when we wrote about the console and its games," says Julian.

« RPGs such as Ys I and II were among the first releases on CD-ROM

"Most people wanted to know when it was going to be officially launched, how much it'd cost, and what games would be released in the UK." The only problem was NEC – the company was silent on all of those matters.

What happened next was unprecedented in the videogaming market at the time. With a clear demand for PC Engine products and no official supply of them, entrepreneurial types began to import the machines directly from Japan to sell on in their own regions. Magazines were suddenly stuffed with adverts for import game retailers, eager to sell you this previously elusive console. Importing presented some new considerations for players, who had to know if they needed a SCART or PAL machine, as well as get an appropriate step-down converter for 110V power. However, even factoring in the price premium associated with importing, a PC Engine would cost you £200 or so – less than an Atari ST, and about half the price of an Amiga 500. This wasn't just limited to the UK market, either. The most sophisticated PC Engine import operation of the time seems to have been the French company Sodipeng (Societe De Distribution De La PC Engine), a subsidiary of accessory manufacturer Guillemot International which sold imported consoles with unique French instructions and packaging, and even warranty support. ▶

PC Engine

SIZE MATTERS

The PC Engine is a famously dinky piece of gaming hardware. Here's how it stacks up against other devices...

"I ACTUALLY LOVE THAT WE DIDN'T HAVE AN OFFICIAL RELEASE BECAUSE WE GOT ALL THE TITLES IN THEIR PUREST FORMS"

Paul Weller

One of the customers funnelled into the PC Engine market by the press and importers was Paul Weller, who today runs the PC Engine Software Bible at pcengine.co.uk, one of the best online resources for fans of the system. "It was the first machine that truly felt like the arcade experience. Previously I had a Sega Master System and while it was great, the limitations were obvious. But the PC Engine ran fast and smooth with loads of sprites and amazing sound. It was a turning point in consoles for me," Paul reflects. "The physical design of the machine was also highly appealing, and because the games were all imports it added an exotic air to them."

The import market didn't go unnoticed. Within a few months, NEC would take out advertising that warned users about imported PC Engine consoles – they were likely modified without NEC's consent and the company wouldn't offer warranty support or repairs for them. Its intent as a deterrent against import purchases was obvious, but went largely unheeded by players. As far as the public was concerned, the PC Engine was available and NEC's endorsement was no big deal – after all, the company still hadn't come forward with any release plans to make waiting worthwhile.

3 MAIN CHIPS

ronically, the reason that the warnings were being placed was because those official plans did exist. NEC was just keeping quiet about them, since North America was going to be tackled first. The decision makes some sense, since Nintendo had already established videogame consoles as a hot product in the region, and the European market's various languages and customs present additional challenges. It ultimately turned out to be a bad move, squandering a market primed and ready for the system for the potential to make even more money. The PC Engine was released in North America in late 1989, redesigned and rebranded as the Turbografx-16, and an initial batch of PAL units simply called Turbografx made it as far as manufacturing. However, the system bombed with the American audience and NEC lost confidence in the system's European prospects, quietly pulling the plug on its unannounced release and offloading its stock to Telegames.

The system's failure to launch in Europe resulted in a decline in coverage for the system. "It was a real disappointment when we realised the machine wasn't ever going to officially hit UK shores, but by that time the Mega Drive and Super Famicom had arrived and were beginning to take up the lion's share of our focus," remembers Julian. "It's not that I lost interest in the PC Engine per se. I've always loved the machine, but there was just a lot more excitement surrounding the Super Famicom and Mega Drive as we headed into the Nineties. CVG's readers also seemed to be far more interested in hearing about Nintendo and Sega's new machines because they knew that it was only a matter of time before they were officially launched in the UK." When Mean Machines launched in October of 1990, the Amstrad GX4000 took the PC Engine's cover spot because while it was unproven, its official release meant that it actually had a chance of attracting some advertising.

[illegible]

As an import console, game prices would always be high, as Paul remembers. "It did mean I'd have to be quite particular and careful about what I spent my money on. But luckily I think my core collection from back then was very solid." As mainstream coverage of the PC Engine in the UK press went into decline, players would eventually have to look elsewhere for information. "I'd regularly read (i.e. look at the pictures) the Japanese magazines as well to get the lowdown on the latest titles," notes Paul. "I was also lucky enough to have a couple of friends who would have the resources to buy a lot more games than I did, so there was always a chance for me to experience a range of new titles that couldn't afford."

While the lack of an official release did present some unusual obstacles, the import-only nature of the machine only added to the appeal for those players that had already bought in. "I actually love that we didn't have an official release because we got all the titles in their purest forms without censorship or having to put up with tacky name changes and bad cover art," says Paul. "I was really into the manga/anime style back then. It was something fresh and new and hard to get hold of in the UK at the time, so I tended to gravitate towards anything with that kind of art on it. Schbibin Man was one of my early pickups, as well as City Hunter as I was a pretty big fan of the comic."

[illegible]

As we moved into the Nineties, the nature of the PC Engine market changed considerably, but with coverage now the domain of fanzines like Electric Brain, UK players won't have noticed unless they were already invested. The ▶

PC Engine

ARCADE PERFECT?

The PC Engine was famed for its conversions – here's how some notable examples compare to the originals

R-TYPE
NEM, 1988

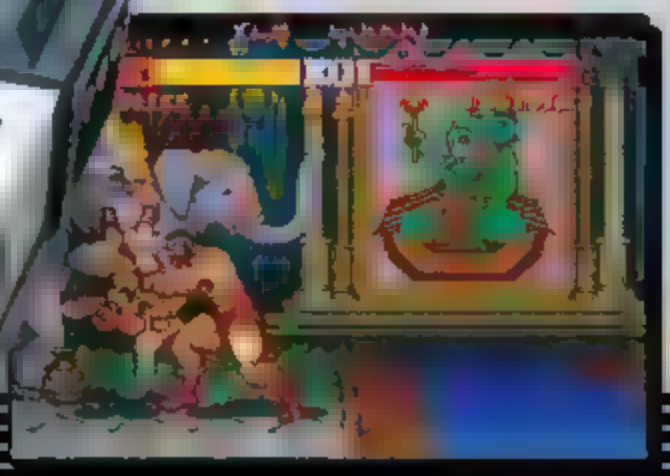
GALAGA '88
NAMCO, 1988

OUT RUN
NEC AVENUE, 1990

emergence of the Super CD-ROM² format in 1991 sent HuCard releases into decline, as the CD format allowed NEC some advantages over the explosively popular Super Famicom, but Paul was still along for the ride. "The PC Engine was always designed to have the CD add-on, and as such it felt like a natural progression of the machine, unlike the Mega-CD," he notes. "I was lucky enough to buy a CD unit from a friend (after playing titles like Monster Lair and Ys I just had to have one) so I was building up a good library of both CD and HuCard games, but mostly focussing on the CDs."

While some great arcade conversions were released on disc including Pomping World (better known as Pang) and Gradius – the high capacity of CDs was more commonly used for digital comics, RPGs and adventure games with lavish animation and lots of speech. "CD-based games opened up a whole new world which was truly exciting to be a part of. We now had stunning anime-style visual scenes, amazing music and the storage capability that allowed for some incredible games," says Paul, and there's no denying the quality of what's out there. Original games like Gate Of Thunder and Winds Of Thunder, the Cosmic Fantasy games and Castlevania: Rondo Of Blood were simply fantastic, and the CD-ROM system attracted more RPG conversions such as Might & Magic III and Dungeon Master. It's hard to disgree when Paul says "To me, a PC Engine without a CD unit is only half a machine."

Still, one last play for the arcade lover's cash was made in the form of 1994's Arcade Card, a CD-ROM add-on which gave the PC Engine an additional two megabytes of RAM – a preposterous amount by the standards of the day, more suited to next-generation machines. While it did allow the system



Paul Rignall (non-) The Legendary Axe as one of his favourite PC Engine games

"I THINK THE PC ENGINE WAS INSTRUMENTAL IN KICKING OFF THE UK IMPORT GAME MARKET"

Julian Rignall

to host the best conversions of Neo-Geo games, it didn't revitalise the system like the advent of Super CD-ROM² did – just 11 dedicated Arcade CD-ROM² games came out.

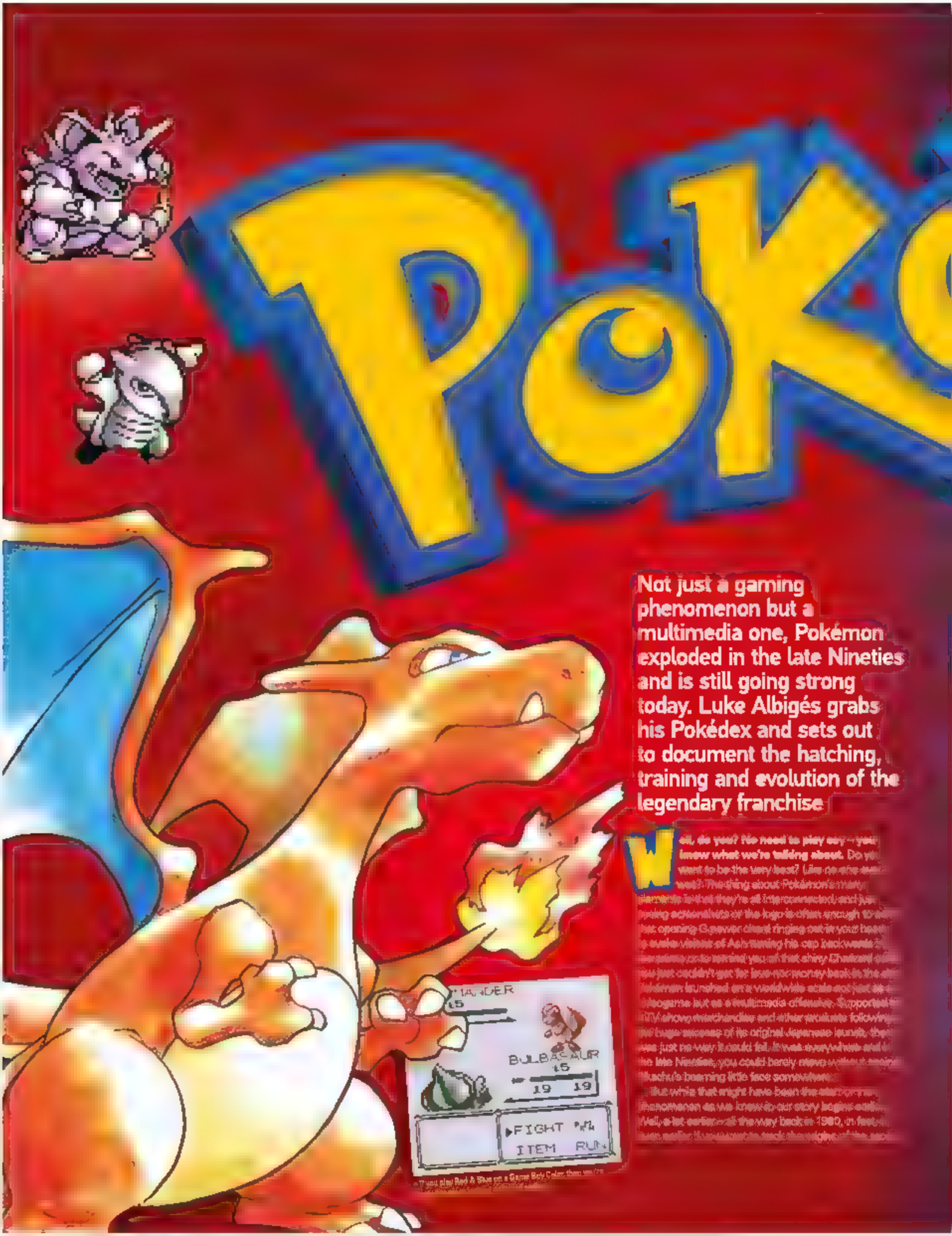
Paul is still heavily involved in the PC Engine scene – as well as his website, he has worked on homebrew games, fanzines and much more. For him, flying the PC Engine flag is a labour of love. "Retro gaming is big these days, but most of the chat is Nintendo this or Sega that. The PC Engine is a bit of an underdog and it's nice to supply information that allows people that are new to the machine to discover how great it really is," he explains. "The PC Engine isn't my only beloved system, but it's the one that needs more appreciation."

Those who were lucky enough to experience it at the time need no convincing of the PC Engine's quality, of course. Tony still remembers being drawn to "the speed, colour, size and accuracy of the conversions coupled with the tiny size of the console itself," and has a list of favourite games a mile long, including Gunhed ("For all the men among you who could take the bullet heat!"), Monster Lair ("Awesome music track, one of the best ever") and SonSon II. "I took it down to Jeff Minter and we literally holed up for two days playing this game between us and chowed down, one of my best memories from [illegible]"

"I [illegible] playing the early PC Engine arcade conversions like Galaga '88, Dragon Spirit, and R-Type I and R-Type II – also spent a lot of my time mastering the two pinball games, Alien Crush and Devil Crash – both of which are superb," Julian says enthusiastically. "Then there's Vigilante, Splatterhouse, Pac-Land and Side Arms. Oh. And I can't forget Legendary Axe too: a classic platformer that features some fantastic music."

It seems strange to talk about the legacy of a console in a market which never officially had it, but the PC Engine actually seems to have created a legacy by virtue of its non-release. Can the PC Engine be credited with the rise of import gaming in the UK? "I think yes, that would be fair to say. the PC Engine started it all, then it continued with Mega Drive and SNES and more esoteric systems like the X68000 from Sharp," says Tony. "I think the PC Engine was instrumental in kicking off the UK import game market – buoyed in part by the journalistic hype from magazines like CVG," agrees Julian. "If you look at early grey import advertisements in magazines of the period, they were very much focused on the PC Engine. If you had money and were a hardcore gamer, the PC Engine was the coolest system you could own."

Ultimately, that's what drove players to the system – we're always searching for the latest and greatest ways to experience our games, and it doesn't matter how we get them. The PC Engine was the turning point at which consoles overtook computers as the most exciting hardware to play games on, and neither a foreign language nor high costs would deter some of us from having it. ★



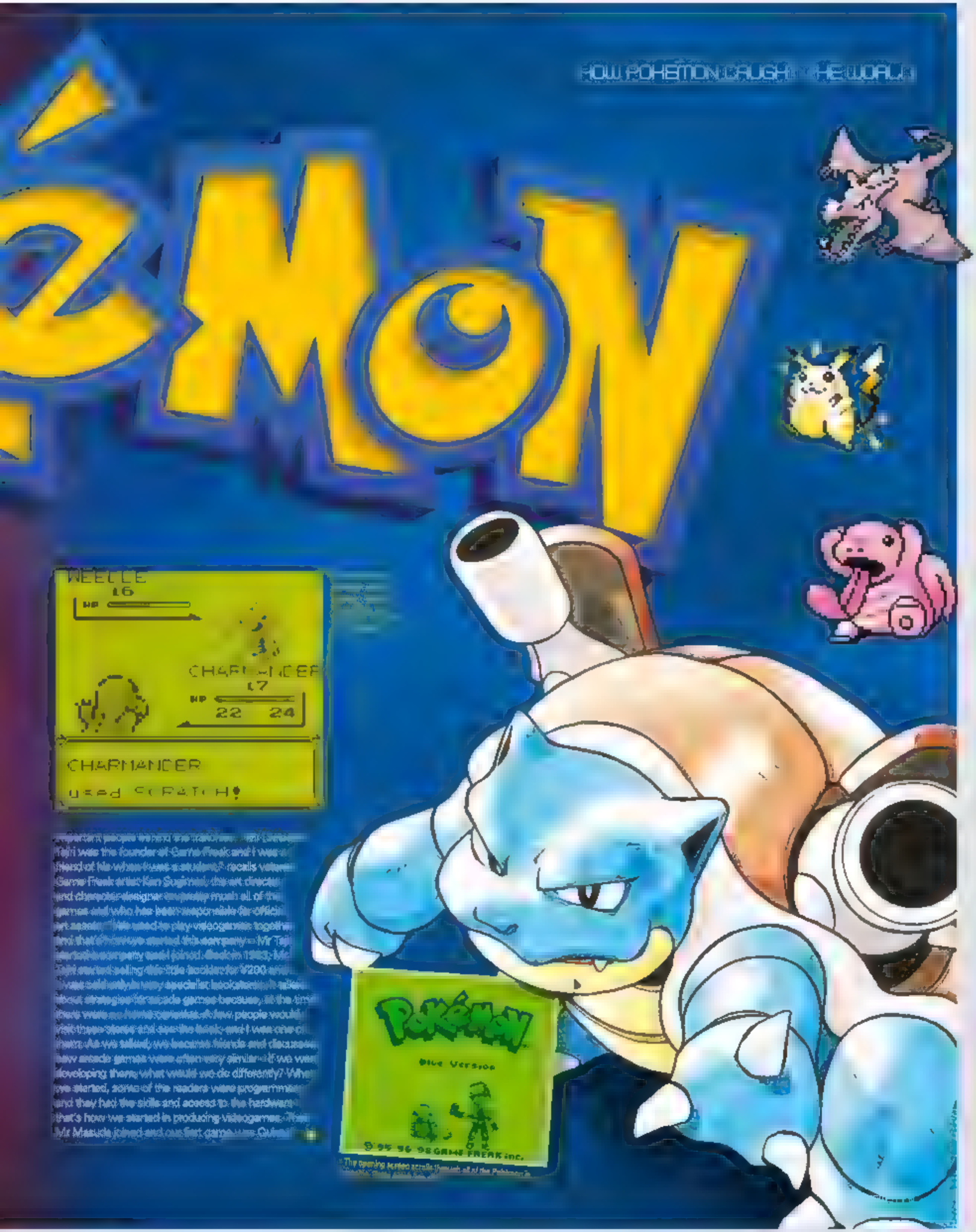
Pokémon

Not just a gaming phenomenon but a multimedia one, Pokémon exploded in the late Nineties and is still going strong today. Luke Albigés grabs his Pokédex and sets out to document the hatching, training and evolution of the legendary franchise

Well, do you? No need to play coy – you know what we're talking about. Do you want to be the very best? Like no one ever was? The thing about Pokémon's many elements is that they're all interconnected, and just seeing screenshots or the logo is often enough to [illegible] that opening G-power chord ringing out in your head [illegible] of Ash turning his cap backwards [illegible] or to remind you of that shiny Charizard [illegible] you just couldn't get for love nor money back in the [illegible] Pokémon launched on a worldwide scale not just as a videogame but as a multimedia offensive. Supported [illegible] TV show, merchandise and other products following [illegible] huge success of its original Japanese launch, there was just no way it could fail. It was everywhere and in the late Nineties, you could barely move without [illegible] Pikachu's beaming little face somewhere.

But while that might have been the start of the phenomenon as we know it, our story begins earlier. Well, a lot earlier – all the way back in 1980, in fact [illegible]

© If you play Red & Blue on a Game Boy Color, then you're [illegible]



[illegible] Tajiri was the founder of Game Freak and I was a friend of his when I was a student," recalls veteran Game Freak artist Ken Sugimori, the art director and character designer [illegible] much all of the games and who has been responsible for official art assets. "We used to play videogames together and that's how we started this company – Mr Tajiri started a company and I joined. Back in 1983, Mr Tajiri started selling this little booklet for ¥200 and it was sold only in very specialist bookstores. It talked about strategies for arcade games because, at the time there were no home consoles. A few people would visit these stores and see the book, and I was one of them. As we talked, we became friends and discussed how arcade games were often very similar – if we were developing them, what would we do differently? When we started, some of the readers were programmers and they had the skills and access to the hardware – that's how we started in producing videogames. Then Mr Masuda joined and our first game was Quinty."

The opening screen scrolls through all of the Pokémon in [illegible]

Pokémon

Just The Start

"Who was your first Pokémon?" we asked, and this is what you said...

Bulbasaur

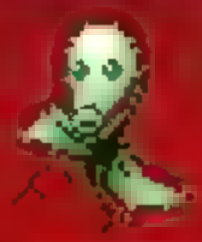
We're surprised this leafy little dude didn't fare better, if we're honest – it can make short work of the first two Gyms and its unique split typing gave it a strong set of options in battle. It also evolves quickest of the three starters, reaching its blooming awesome final stage at Level 32 rather than Level 36, although its reliance on status moves may put off those who just want to bang their heads against opponents.

Charmander

While we're not entirely surprised that He Who Would Be Charizard came out on top in our poll, picking the Fire type as your starter is actually the hardest option as it's weak to both Rock and Water, the types used by Brock and Misty in the first two Gyms. Still, with the highest attack power of the three, it's hard to argue that the Charmander line isn't a powerhouse once you've overcome that first hurdle.

Squirtle

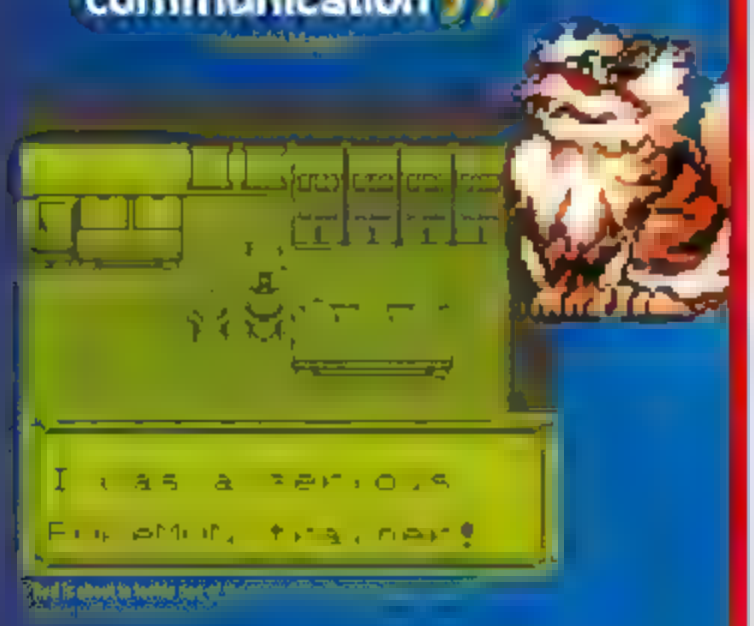
Water types have something of a history of being strong defensive options in *Pokémon* games and Blastoise – Squirtle's final evolution – also fits into this category. As such, it's not always easy to make headway (plus you're likely to stall at Misty unless you've bagged yourself a Pikachu in Viridian Forest), but Squirtle's depiction in the anime was always going to make it a fan favourite.



Quinty, or Mendel Palace as you might know it, was a simple action-puzzle game released for the NES in 1989, its completion heralding the start of something much bigger, much more ambitious in scale, something that we know today as Pokémon. The vision started out small, originally targeting a creature count of around 50 monsters but with that number growing steadily as new ideas were hatched and improved hardware and coding techniques emerged around them. In fact, it sounds as though the team always had more ideas than would be possible to fit into the memory capacity of a Game Boy cartridge. "From the inception of the idea to the completion of Red & Blue took a total of about six years, so a long time!" smiles current producer Junichi Masuda, whose involvement on earlier titles was mainly in coding and penning the music of the original games, later taking on directorial and production duties on every mainline release. "We started by creating loads of different Pokémon designs then we reduced that down to the favourite 150. That took a lot of effort. After that, once we were happy with our designs, we started working on the moves they could each use. This process probably accounted for around three of those six years. It was quite the task! There wasn't an initial plan of which Pokémon would get which moves – we designed the Pokémon then designed the moves, then decided which would fit well together as a gradual process."

Masuda goes on to confirm our suspicions that the team was dreaming far bigger than what a cartridge could accommodate, but it wasn't just a question of storage – it was a case of the ideas being beyond the realms of what the Game Boy hardware could do. "It was difficult. The thing we wanted to focus on at the start was communication and trading but it was difficult to do that as we could only transfer small amounts of data between two consoles," he explains. "Communication itself was a big challenge – the technology just wasn't there but we really wanted to do it, so we fought to get it in there. That was an overriding theme – it was a fight against capacity, a fight against what we could fit onto the cartridge. We had designed these 150-odd Pokémon to get in as well. But then we had the problem of movement, so we came up with the idea of the map tiles being the things that moved while

"The thing we wanted to focus on at the start was communication"



we found ways to squeeze as m
could. I like the Game Boy as a
work with all these challenges and make
anyone could get into and enjoy was difficult."

Bear in mind that we're still talking about the original Japanese releases of Red & Green at this point – localisation hadn't even been considered, and the studio ran into some serious issues when tasked with preparing the game for release outside of Japan. "Originally, it was kind of based on how people feel about and view different colours. The clearest split for us was between red and green but when we started thinking about it abroad, it was clear that wasn't the case. In America in particular, it's red and blue that are considered 'opposites', if you will," Masuda reveals, although there were somewhat more pressing issues standing in the way of taking the game abroad, which is what led to the gap of over two-and-a-half years between Japanese release and US launch, not to mention another year to

that we found is that English takes
the cart than Japanese. We had no
so full on that cartridge and there
space to implement English at the time we
To change that to accommodate English was really
difficult and something we hadn't considered when first
designing the game. We really had to spend a lot of
time working on all of this."

Like No One Ever Was

Pokémon theme singer Jason Paige on his contribution to the series' success

How did you come to land the gig performing the original *Pokémon* theme?

It was one of 100 sessions a year that I did for various clients. I had worked for this music house before and as always sang my face off for the demo session. Soon after we recorded a few changes that eventually were approved for the show. Shortly after the success of the TV show, the album *2.B.A.Master* was recorded when the full version of the theme song appeared, along with *Viridian City*.

Was everything set in stone when you came to record it, or were you able to add any personal flourishes?

Every session involves a collaboration between singer and producers, writers and the client to find the best delivery. In the session, I sang multiple versions of the line "gotta catch 'em all" with many melodies, giving them a variety of choices. I riffed out in the bridge and augmented some lines to amplify emotion. Though I didn't get credit as a writer, I believe everyone in the room is responsible for the product.

Were you aware of the brand at the time, or given any source material to get a feel for it?

I was aware of the brand through some news articles. And we had examples of the Japanese TV show to watch and catch the vibe.

Did you have any idea how huge *Pokémon* would become, and how iconic the theme would go on to be?

Every session is a roll of the dice hoping that the effort results in the most happiness for the most people. Often there are other indicators like celebrity involvement, big producers, writers, networks that promise to make a product big and it doesn't go anywhere. I've learned to be in the moment, serve the creative task at hand and move on to the next one. Water the seed and wait for the fruits to appear. And they're still coming off of these seeds planted 18 years ago.

Would you describe yourself of a fan of *Pokémon*? Do you play/enjoy the games, and indeed videogames in general?

I was an arcade kid playing all of the old-school games. *Space Invaders*, *Missile Command*, *Donkey Kong*, *Q*bert*, *Night Driver*. And at home, I had Atari, Intellivision and Coleco games and now I am a *Pokémon Go* player and fan. It far surpasses my childhood arcade games. Its multiple choices and outcomes are way more exciting than the single path games of my youth. There are no right answers of how to be the very best. Each individual has a unique path to be that master. Just as each *Pokémon* has a unique path to its most evolved state.

How do you feel the theme sits among the rest of your portfolio?

It's right at home with the *Lego Mania* theme song that I wrote mid-Nineties and other popular jingles like the Pepto Bismol *Nausea Heartburn Indigestion* anthem, Subway's *Eat Fresh*, Mountain Dew's *Bohemian Rhapsody* and others are right in line with it. And with the addition of the new *Pokémon GO* theme song available at PokémonGotheme.com – the perfect companion for the next generation of players and *Pokémon* lovers. I also do magic and balloon sculpture so kids have many reasons to love me. *Pokémon* makes people happy and helps them expand their imaginations. I have a portfolio of work that seeks to enhance the imagination as well through sharing my unique truth and voice.

Finally, anything you'd like to add about your involvement with Pokémon?

I believe *Pokémon* to be a game that enables critical thinking as people are challenged to develop unique strategies to excel that they then can share with other players. These lessons easily transfer to their own lives. As new technologies like AR are integrated, the game and brand will adapt for even greater adventures. I can't wait to see what future technologies are added. And the updates should make it more exciting as well, adding more functionality and interactivity between players. It's all so incredible on a physical level as it demands movement not just through neighbourhoods but through entire regions. It's also made quite an impact on childrens' health, getting them out into the world, increasing learning for kids with autism and adding much social value surrounding its explosion.

Pokémon

Evolution Tracker

Each new game or generation in the Pokémon series has brought with it significant changes and improvements

GENERATION I

RED/GREEN/BLUE (1996)
YELLOW (1998)

■ *Pokémon* was released in Japan for the first time in 1996 and proved immensely popular. Despite the games' protracted development, there were still several major bugs and glitches, many of which are ironed out with a third *Blue* version arriving later in the year. This would also update visuals and audio, providing the basis for the international release as *Red & Blue* that rolled out between 1998 and 1999. Another revision, *Yellow*, emerged slightly later: the game modified a little to be more in line with the plot, events and style of the anime.

GENERATION II

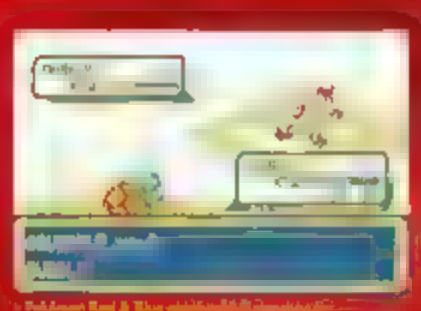
GOLD/SILVER (1999)
CRYSTAL (2000)

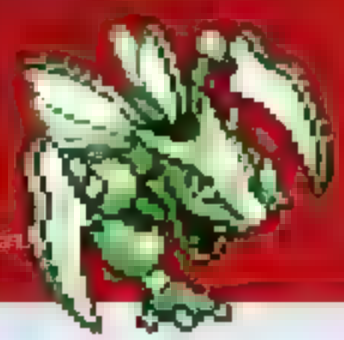
■ A lazy sequel would have been easy to do, but instead, Game Freak iterated on everything that made the first game stand out. Two new types were introduced – Dark and Steel – in an attempt to rebalance existing ones, while the shift to a real-time system that governed Pokémon and NPC availability was incredible. It also saw the debut of shiny Pokémon with variant colours, pre-evolutions of existing creatures, held items for use during battle, genders and breeding, as well as splitting the original Special stat into attack and defence values in line with physical stats.

GENERATION III

RUBY/SAPPHIRE (2002) **EMERALD** (2004)
FIRERED/LEAFGREEN (2004)

■ This gen brought in many staples of the modern *Pokémon* game – Abilities added passive traits to each Pokémon, Natures altered base stats and Double Battles allowed for two-on-two encounters, plus Contests gave a non-battle aspect for pacifists. It also saw a shake-up to the way each Pokémon's potential was calculated, marking the shift to the IV system still used to this day. *Emerald* put a real focus on post-game content with the excellent Battle Frontier, while *FireRed & LeafGreen* brought the original games up to date with these more complex new systems.





"Some of this could be seen in the game at the
time, with character limits on menu terms, character
creature and item names and even a few attacks
Space, both on the screen and on the cart itself
was at a premium, hence these unusually
short chunks of text as seen elsewhere
the game actually, as Masuda highlights.
"Another example is the Pokédex. In the
original Japanese versions, you just had
one screen and everything was displayed
here whereas in the US and European
versions, it had to be changed to have
two screens with the names and details
of the Pokémon. Doing all these great
changes took a long time, so that was what contributed
to the delay. We never expected things to be so popular
abroad, either – we had no idea this would be such a
phenomenon so that was really amazing. But yes,
took a long time to make all the changes needed to get
the game into different markets."

After all this extra work, Red & Blue released in
the US towards the end of 1998. With the
anime, the trading card game and more
toys, games and other assorted tat with
the Pokémon logo slapped on it releasing alongside
it, the buzz was huge and with no European launch
date so much as hinted at by Nintendo at the time,
would-be Trainers would have to go out of their way
to grab import copies of the game – some indie game
stores even imported these in bulk to sell through at

mine had
brought back Pokémon from America, where he had
gone on holiday," recalls Joe Merrick, webmaster of
favourite Serebii.net – a resource many
for well over a decade. "It hadn't been
released here, though the anime was
running on Sky and so when he showed
the game, I was intrigued, watched the
anime and pestered my mother to import
the game."

Surrounded as it was by a hype machine
on a peerless scale, you might think that
this wasn't a matter of quality – for those who
weren't fans, the choppy, low-budget animation of the
TV show and hoards of cheap collectible junk certainly
could have suggested as much, at least. Despite its
seemingly low production values, the anime series
was entertaining in its own way, luring in new fans
with its colourful characters and easy-to-follow stories
but the games have always been superb. "I think the
quality had to be there," muses Merrick. "Without it,
people wouldn't have felt encouraged to play the games.
While Red & Blue were a bit buggy, they had a solid
foundation, and were complete fun to play causing a
lot of people to jump in. However, the factor of the
anime and cards also had a huge impact to the rise
of Pokémon. Many people didn't play the games and
just focused on the cartoon or the cards, but like the
games, the quality definitely had to be there for it to
take off."

GENERATION IV

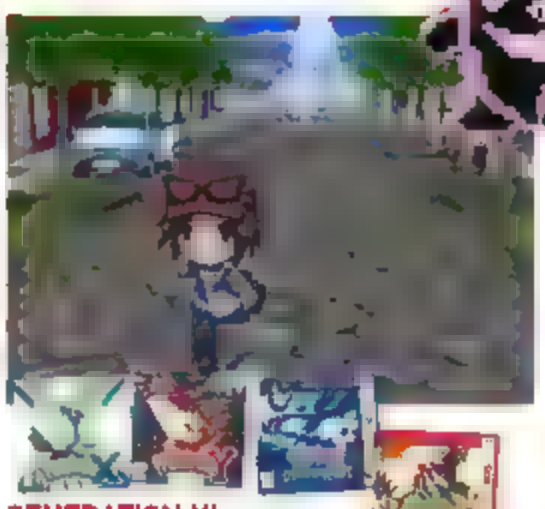
DIAMOND/PEARL (2006), **PLATINUM** (2008)
HEARTGOLD/SOULSILVER (2009)

■ The major change ushered in by this generation was the physical/special split, where move power would be governed by the Attack or Special Attack stat on a case-by-case basis. The jump to DS hardware also allowed for other improvements, such as 3D environments and contextual use of the touchscreen, not to mention true online functionality for the first time. *Platinum* iterated upon this further while remakes *HeartGold* and *SoulSilver* brought the second-generation games up to date with all the new features of the current mainline games.

GENERATION V

BLACK/WHITE (2010)
BLACK 2/WHITE 2 (2012)

■ Quality of life was order of the day here, and we're thankful for it today. Primary alterations included the removal of usage caps on TMs, a freeform Elite Four structure and not having to worry about the effects of status conditions such as Poison outside of battle, while new battle modes like Triple and Rotation Battles brought in even more new ways to play. Online play was also improved and Global Link for trade and battle really added to the package. It's the only generation where we've seen direct numbered sequels too.



GENERATION VI

X/Y (2013)
ALPHA SAPPHIRE/OMEGA RUBY (2014)

■ Another leap to more powerful hardware meant another big set of changes, with the death of four-directional movement and the introduction of full 3D environments being chief among them. A new type – Fairy – was also added, the first since the second generation. Greater visibility on previously-hidden stats and values was another nice quality of life improvement, while Mega Evolution updated existing Pokémon with new, more powerful versions during battle, something that was taken even further in the third-generation remakes that followed.

> **"It took a long time to make all the changes needed to get the game into different markets"**

But take off it sure as hell did, the multi-limbed approach meaning that there was always something going on in the world of Pokémon – game development may be time-consuming but when you've got new TV episodes dropping, trading card sets being released, toy lines coming out and Arceus-knows what else helping to fill the gaps between the mainline videogame releases, it's easy to maintain a high-profile media [illegible] to think about how we can develop beyond the game [illegible] game itself and we discuss with them how best we can [illegible] we're creating might fit in with their plans." He goes on to explain the difficulty in such coordination between multiple teams and companies, especially when game release dates can't be easily altered. "As we develop the game, we get the TV, TCG and animation teams in to play it so that they have a better idea of what the world, the characters and the Pokémon are like," adds Sugimori. "We're all creating the characters and the settings together so that they're consistent across movies, games and trading cards."

As was to be expected, sequels to Red & Blue came thick and fast, but not before Game Freak could establish something that would go on to become almost traditional for Pokémon releases – a third game to complement the original pair of releases, originally in the form of Yellow (or Special Pikachu Edition, to give it its full title) which bridged the gaps between Red & Blue versions and was tweaked to tie into the events and characters of the anime. Crystal, Emerald and Platinum all filled similar roles in their respective generations, although it stopped there – Black & White didn't exactly lend themselves to the naming conventions of this trend (honestly, who would buy Pokémon Grey?) and got direct sequels instead, while X and Y were long rumoured to get the trilogy treatment with Z, although all the stuff that has emerged that follows legendary Pokémon Zygarde has instead found its way into the imminent seventh-generation releases, Sun & Moon.

Each game, while still rooted in the core structure used in Red & Blue, has made great strides in [illegible]

A New Dawn

The Pokémon story isn't over just yet...

Pokémon Sun & Moon, was released in November 2016, and was not only a tribute to the original *Pokémon* games that started the entire phenomenon, but also added many innovations. The game boldly did away with Gyms – a staple of the series since the beginning – replacing them with puzzle-based Trials, and some of the original 151 Pokémon have been reimagined with new Alolan forms. Following Digging, Moomoo and [illegible] all have evolutions. Pokémon [illegible] Ultra Moon, a significant [illegible] Moomoo Iwa?

Pokémon

Science Of Pokémon

Raising the perfect Pokémon – there are myriad factors at work under the hood and [illegible] will need to be on top of all of them

IVs

Short for Individual Values, these hidden stats dictate the potential of a Pokémon. While randomly generated on capture, these values are a lot easier to manipulate via breeding, with parent Pokémon passing on a set number of these values to its offspring, which can be increased by having one breeding partner hold the Destiny Knot item. Chain breeding, while time-consuming, can therefore lead to hatchlings with perfect stats.

Natures

While breeding for great IVs, you'll also want to make sure you end up with a Nature that is beneficial to the Pokémon in question without hurting its other stats too much. Alakazam, for instance, can happily roll with a Modest nature as boosting Special Attack in exchange for a cut to its already-awful Attack. A 10 per cent buff to a beneficial stat is huge and there's almost always another than can be sacrificed to get it, meaning the neutral Natures are rarely the way to go.

EVs

It's Effort Values this time, referring to the stat boosts granted by battling against different types of Pokémon. Every opponent defeated adds one or more points to a stat, with every four points granting a one-point boost to that stat at Level 100. This isn't infinite, mind – there's a cap at 510 points and 255 to any given stat, allowing for up to 63 points to be added to stats of your choosing or a broader spread of smaller boosts.

Moves

While you might think attacks will be the last thing to think about, that's not always the case. Certain moves can only be learned via breeding – and in some cases complex strings of chain-breeding across multiple species – which can add yet another variable into the mix. For the most part, TMs and tutors can be used to supplement 'natural' moves and get the perfect results, but there will be some instances where breeding for Egg Moves is the only way to get the attacks you want.

Abilities

With each Pokémon having between one and three passive Abilities, getting the right one is important, if not crucial depending on the creature in question. In some case the difference is negligible or there is only one option in the first place, and that makes life a little easier. But for others, the optimal Ability is the difference between competitive viability and storage-box-filler.

Held Items

Nearly there now. One last thing to consider is which item each Pokémon on your team should hold. These will often tie into existing strengths and game plans, although many of the outliers also serve as viable options on the right Pokémon – switch in a Rocky Helmet Ferrothorn against a Mega Kangaskhan and you'll see what we mean. Choice items, ironically, lock you into only the first move used while offering a bonus to Attack, Special Attack or Speed but this requires a moveset tailored around it.

Team Balance

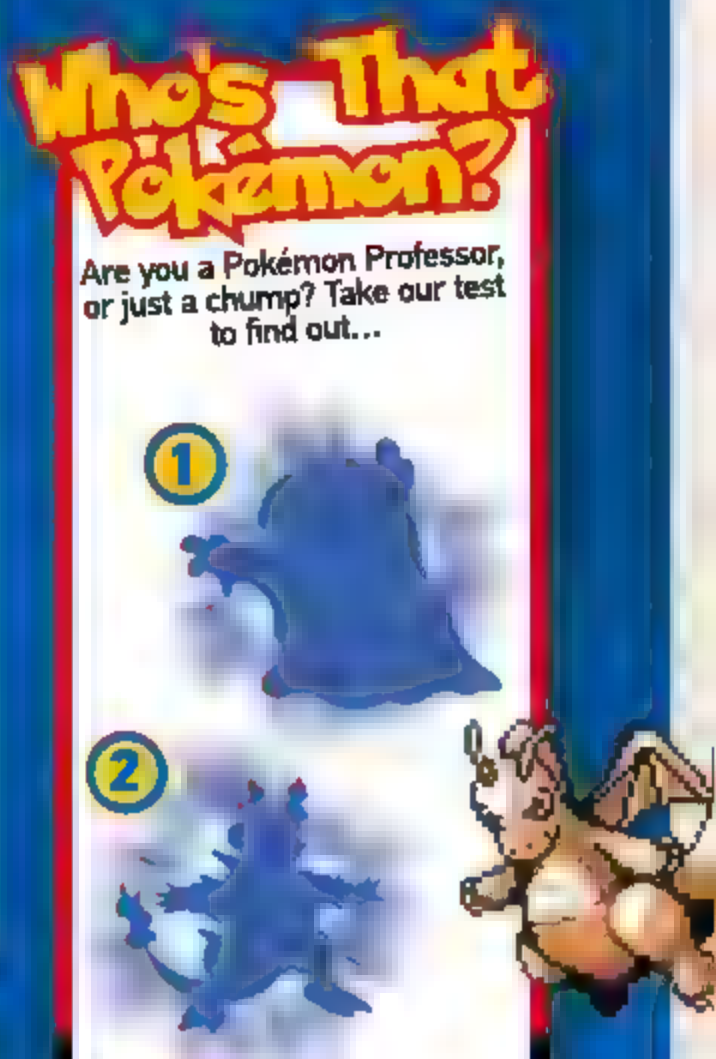
You'll need more than one great Pokémon if you *really* want to be the best and synergy is important. You need to ensure that as many weaknesses are covered as possible, all major threats are checked with a counter and support Pokémon are on-hand to give a helping hand. Aim to pack one defensive and offensive Pokémon for special and physical attacks, leaving you two spots on the team to cover weakness and support.

> **"If you added like 300 or so new monsters, that'd just be too many"**
>
> Ken Sugimori

In terms of improving quality of life for players, which can make it hard to go back to those older games after being spoiled by so many minor improvements in more recent ones. "I look back on them fondly, for sure, but replaying them is a tricky proposition," Merrick tells us in discussion of returning to the original games today. "So often when I go back to play them, so many of the modern conveniences in it are just not there and make playing a slog. For example, in Pokémon Red, Blue and Yellow, you had no idea what a move did in-game unless you had an external guide. Sometimes playing the old games without the conveniences and features of modern games just causes me to think, 'How did we play these games?' Once I erase that from my mind, though, I can still enjoy and play through them happily."

Even then, it's not just these minor convenience tweaks, with each new generation expanding the strategic aspect of the game, not least with every new generation bringing with it a whole new selection of Pokémon. "The reason why there are about 100 Pokémon added per game is not that we can't come up with the ideas, especially when we have new staff – everyone can come up with unique ideas," Sugimori explains. "The number is set by the duration of the project. Plus, if you added like 300 or so new monsters, that'd just be too many – we have to think of the balance of battles." The same is true of introducing new types into the mix, which is why only three new ones have been added to the initial 15 since launch. "By adding even one more type, it definitely makes the gameplay more complicated so when we did that, we had to really look into the battle balance," Sugimori tells us. "With new moves, there's an infinite combination, we can solve that problem, we can always add more types – it's not impossible."

Having been on board since the very beginning and [illegible] been more attached to the series than most thanks to



well-placed to discuss the significance of the
anyone else you might care to mentio
with the franchise in all its guises on
much daily basis, with a weekly workloa
that is pretty staggering for a fan project.
"Sometimes it's as little as five hours, others
it is pretty much 155 hours," he laughs. "It al
depends on what is going on in the franchise.
As time has gone on, not only have I focussed
more on the quality of the site, but more stuf
is happening in Pokémon. In past years, I would typically
have a lot of times where I had nothing to do; as I have
a policy of never skipping more than one calendar day
in a row on the news updates, it got tricky to a point of
having to contrive reasons to update. Now, though, I
rarely have this issue. In 2015, I updated on 331 of the
365 days, and on the other days I was typically working
on something else."

Addendum to the Yellow edition of the game, in order to help the players to live with the mice's evil ways!

every age group and demographic imaginable
es you probably saw recently when Pokémon Go
brought fans of all ages out of the woodwork in search
of virtual creatures in the real world. "The community
s by far my favourite thing about Pokémon," Merrick
tells us. "Aside from a few elements within it, it's one
of the friendliest communities around. People go out
of their way to help others to find Pokémon. The game
by design, has mandated to get people together to
battle and trade, and it has continued to do that. There
are people alive today because their parents met due
to Pokémon and that is utterly incredible to me!"
Its impact back in the Nineties was phenomenal,
he closes. "It was everywhere and everyone was
playing it. I honestly never thought we'd see anything
like that again. Then, Go happened and once again
Pokémon was everywhere. Whether or not we'll see
an equal of that again? It's hard to say. The industry
is far more volatile these days than it was back in the
Nineties, and far more saturated. Yo-kai Watch, while
huge for a few years in Japan, has diminished and, just
hasn't taken off over here. I am unsure if we'll ever see
a series permeating so many facets of media at once
and be a phenomenon like Pokémon ever again."

Special thanks to Kalpesh Tailor and Emma Bunce of Nintendo for making this article possible.

Addendum: 1. Lizard 2. Mammal 3. Snake 4. Avicula 5. Insect

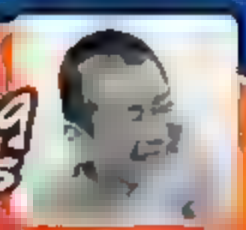
Virtua Fighter

The characters in this revolutionary game might look boxy today, but in the mid-Nineties they were the most convincingly animated characters arcades had ever seen. Join Nick Thorpe to find out how Sega AM2's developers brought a whole new level of realism to the fighting genre.

In The Know

If you ask what the first 3D fighting game was, most people with any kind of a clue will tell you it was Virtua Fighter. Even the Academy of Interactive Arts And Sciences, when bestowing its special award to Yu Suzuki, describes the game as having spawned the 3D fighting genre. The only problem with that is that it isn't strictly true. I've probably never played 4D Sports Boxing, an ill-fated sports simulation from Distinctive Software. It wasn't a bad game back in its day – the low-polygon fighters looked a long way from human, but moved pretty convincingly. Still, it failed to make a lasting impact on the market; 3D boxing games wouldn't be popularised until the arrival of 3D-capable consoles later in the decade. Sega had also made a couple of attempts at introducing some form of 3D fighting game to the market, albeit without the benefit of polygons. Hologram simulated a 3D environment using a curved display and is best forgotten, while Dark Edge used [illegible]

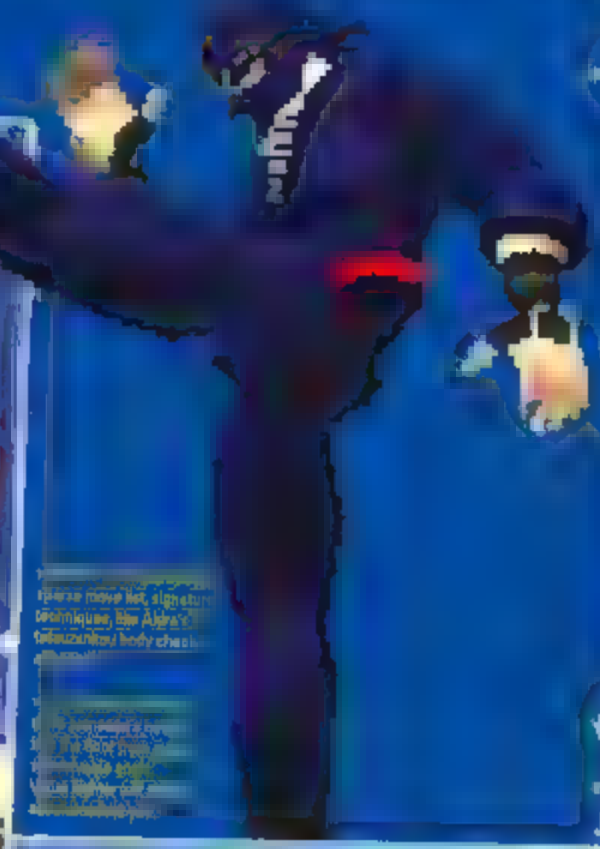
Fighting Coaches

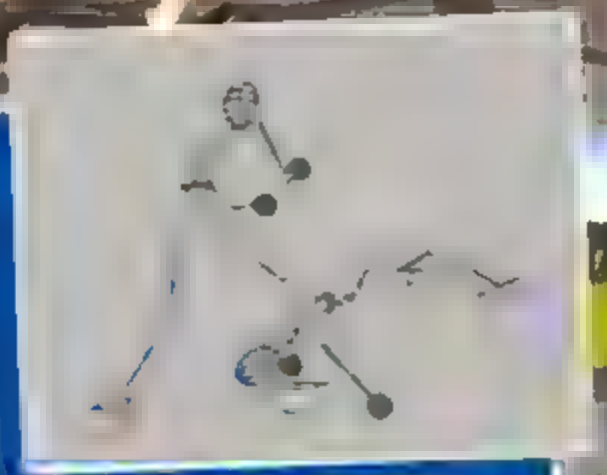


YU SUZUKI

JEFF BUCHANAN

AKIRA
14
ROUND 1





Virtua Fighter

Developer Highlights

> "We sat down and watched martial arts videos, we got up and filmed ourselves doing the moves"
> Jeff Buchanan

▶ animation team on making realistic motions for this [illegible] we're making.

Jeff's experience with karate and aikido was important, as what Yu Suzuki was trying to achieve was a relatively realistic simulation – despite his fondness for contemporary 2D fighting games, he was never interested in including their more outlandish techniques, like fireballs and teleportation. "Even a real martial art such as Quan Fa hides many fascinating qualities," reasons Suzuki. "I knew there would be complications in the pursuit of realism here, and that it would be a challenge to express those hidden qualities in that era of low-caliber graphics, but as an actual martial art, Quan Fa held an undeniable romance for me. I felt I had no choice but to take it on."

Was the kind of practical knowledge that Jeff had really that important? "This was back before motion capture, so all motion was created by hand by our motion designers. We ended up with a lot of unrealistic motion created by designers who had no experience in martial arts," Suzuki explains. His solution was unorthodox, but effective – he required his staff to take martial arts classes themselves. "With some basic punching and kicking practice, we were able to go into production with a team of people who grasped the mechanics involved in that kind of motion." Jeff recalls the story with a chuckle. "I don't think most of the guys were all that big on it!"

Jeff had the opposite problem – he was basically new to computers, with his only prior experience being a brief bit of training in BASIC programming at the US Department Of Defense. "Once I got the job, I got a two-week crash course from one of the guys on the team on how to work with the models that they'd [illegible] build and the control points in Softimage to animate a character," he explains. "After about two weeks of messing around, in that second week I'd made an attack animation. They stuck it in the game and it worked, and Yu-san was all happy. So was I – it was like, 'Okay, I can do this!' From there, I was working with the team on combinations. We sat down and watched martial arts videos, we got up and filmed ourselves doing the moves."

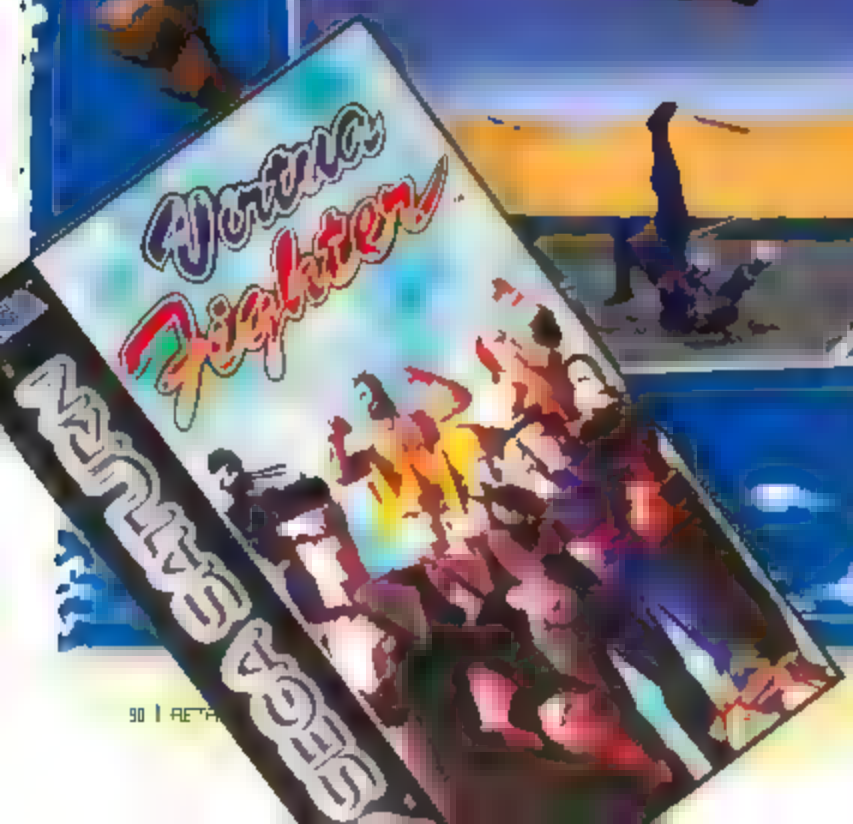
As you might imagine, animating a human body is a complex process, especially when done by hand, and Virtua Fighter's character models were highly detailed by the standards of the day – characters were made from 1,500 – 2,300 polygons, and could even move their fingers individually.

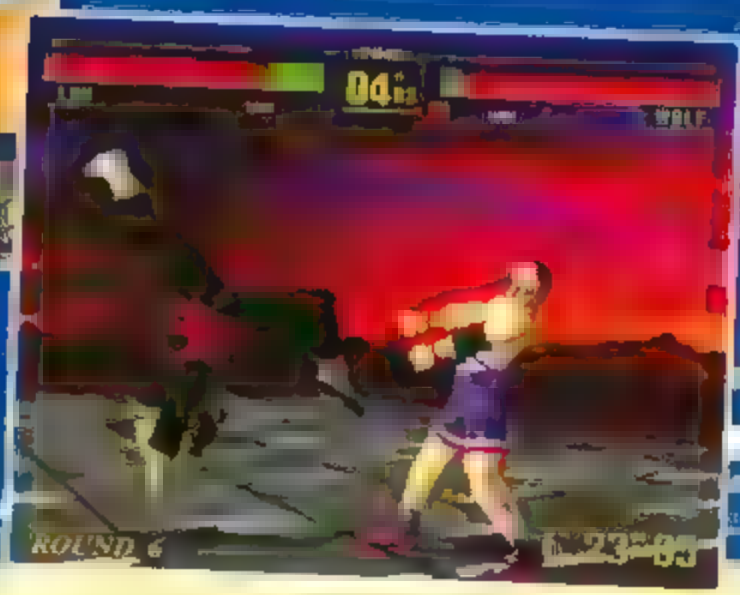
"We had a basic ankle joint, a knee joint, the two hip joints – both turning sideways and bending forward and back – another one halfway up the spine, two shoulder joints, elbow joints, the hands, plus a basic neck joint and another one for moving the head," Jeff recalls. It was a world away from animating Virtua Racing's car models!

Even creating a single punch or kick was quite a lot of work. "It was a little bit time consuming – some of the guys that were pretty good with the animation software could do it within just a few hours," Jeff recalls. "The more complicated the move, especially if you had the body rotate in any sort of way, it took them much longer to deal with it. Of course, then there were issues of timing and refining things within the animation set for the programmers, so there was a lot of rework."

One type of move proved to be more difficult than any other, throws. "Any of the combination motions, where a character would grab and spin and throw or roll with another character, those were the ones that gave us the hardest time," Jeff explains. It's no coincidence that these are amongst the most impressive and damaging moves, and also some of the trickiest to pull off.

Animation wasn't the only complication caused by the use of human characters. "As opposed to [illegible]





Tale Of The Tape

Here are the key things you need to know about all of the combatants in the World Fighting Tournament.

Lau Chan

This quiet man is devoted to achieving [illegible] pursues. Having achieved the distinction of winning the top prize at the world's most renowned competition for Chinese chefs, Lau is hoping to prove his mastery in the field of martial arts.

Fighting Style Koen-ken
Age 53
Birthplace China
Height 169cm
Weight 76kg
Blood Type B
Occupation Chinese chef
Hobby Chinese poetry

[illegible]

[illegible] Native American descent lived a life in the woods as a lumberjack, until a pro wrestling promoter spotted him during a scouting trip. Wolf quickly achieved fame, going undefeated in the squared circle. He enters the tournament in hope of finding worthy competition.

Fighting Style Professional wrestling
Age 27
Birthplace Canada
Height 180cm
Weight [illegible]
Blood Type O
Occupation Wrestler
Hobby Karaoke

[illegible]

This fisherman's greatest opponent is not a [illegible] the eight-metre long Satan Shark. In their last encounter, the fearsome fish nearly killed Jeffry and destroyed his boat. He enters the tournament seeking prize money to build a new boat.

Fighting Style Pancratium
Age 36
Birthplace Australia
Height 183cm
Weight 111kg
Blood Type A
Occupation Fisherman
Hobby Reggae music

Kage-Maru

This ninja has endured a harsh life. In his teenage years, his mother was kidnapped and disappeared without trace. Some years later, his village was destroyed and his father assassinated. Kage-Maru enters the tournament, seeking vengeance.

Fighting Style Hagakure-ryu Jujutsu
Age 22
Birthplace Japan
Height 173cm
Weight 64kg
Blood Type B
Occupation Ninja
Hobby Mahjong

Pai Chan

This action movie star is known for her changeable moods, but one that stays fixed is her disdain for her father and former trainer, Lau. She fled from home at 16 after her mother's death, disgusted that Lau's only cared for martial arts. Pai enters the tournament hoping to beat him.

Fighting Style Eisei-ken
Age 18
Birthplace Hong Kong
Height [illegible]
Weight 49kg
Blood Type O
Occupation [illegible]
Hobby [illegible]

[illegible]

While investigating the circumstances surrounding her [illegible] racing crash, Sarah was captured and brainwashed. With her martial arts skills now supplemented with her training as a assassin, she is sent to the tournament with the goal of killing her brother.

Fighting Style Jeet Kune Do
Age 20
Birthplace USA
Height 168cm
Weight 54kg
Blood Type AB
Occupation College student
Hobby [illegible]

[illegible]

Following a crash in the 1990 Indy 500, Jacky was injured and forced to undergo a rehab, part of which included martial arts training. His sister disappeared just as he discovered that his crash was no accident, and he enters the tournament seeking to solve these mysteries.

Fighting Style Jeet Kune Do
Age 25
Birthplace USA
Height 173cm
Weight 72kg
Blood Type A
Occupation Indy Car racer
Hobby Training

[illegible]

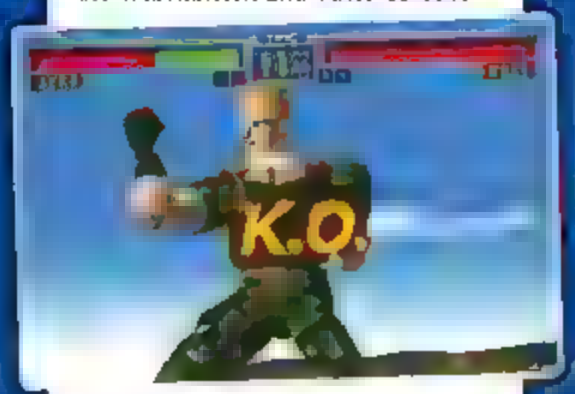
[illegible] infantry were trained in the Chinese martial art of baiquan, better known in Japan as hakkyoku-ken, in order to improve their skills. The man who developed those techniques has passed them down to his son and heir Akira, who seeks to test his training.

Fighting Style Hakkyoku-ken
Age 25
Birthplace Japan
Height 176cm
Weight [illegible]
Blood Type O
Occupation Kung-fu teacher
Hobby [illegible]

Virtua Fighter

Left In The Dojo

Characters that never made it to the tournament and other secrets



A lot of concepts explored during the development of *Virtua Fighter* ended up going unused. This isn't unusual, yet *Virtua Fighter*'s unused content is well documented through prerelease images and footage, official media and leftover data in the arcade game. For a start, half of the main cast was renamed during development. Lau was known as both Lee and Tao at various stages, Kage-Maru was Yagyu, Akira's surname changed from Ryuzaki to Yuki, and Jeffry was formerly Willie Roberts.

Characters also underwent design revisions. The book *Virtua Fighter Maniax* shows Pai in a skimpy 'race girl' outfit, as well as Jeffry with a flat-top haircut and Jacky with headgear.

However, the unused fighters are the most interesting of all. Fans may be familiar with Siba, who appears on early *Virtua Fighter* cabinet artwork and in prerelease screenshots, and was later featured in *Fighters Megamix*. He was to be renamed Majido Abdul in the final game, and can be found in the arcade version. Also lurking in the data is a JS Marine who bears a resemblance to *Tekken* character Prototype Jack. Amusingly he was named Jeff Buckman, a definite nod to Jeff Buchanan ("I was getting a kick out of it... was laughing my butt off," he confirms). Lastly, three versions of an unnamed character exist in the arcade game. Little is known about him, but fans speculate that he may be described by an unassigned character biography, which describes the Japanese college student and karate practitioner Takeru Ryushoji.

Kage has got the kickiest moves in the game – this [illegible] starts from an [illegible] forward roll

Jacky is the most well-known [illegible]

Conversion Cage Match

Virtua Fighter's various conversions graded and reviewed

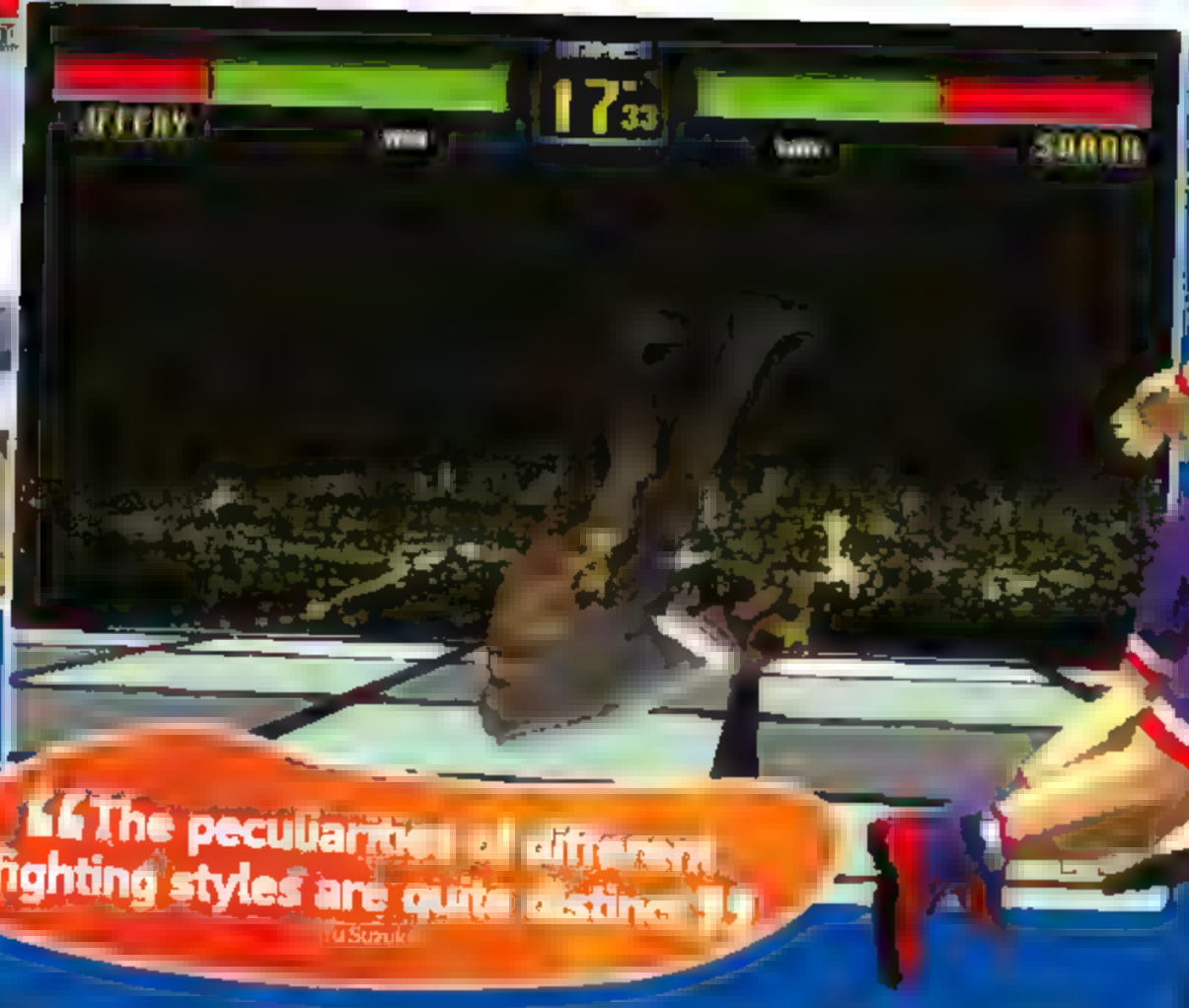
SATURN 1996

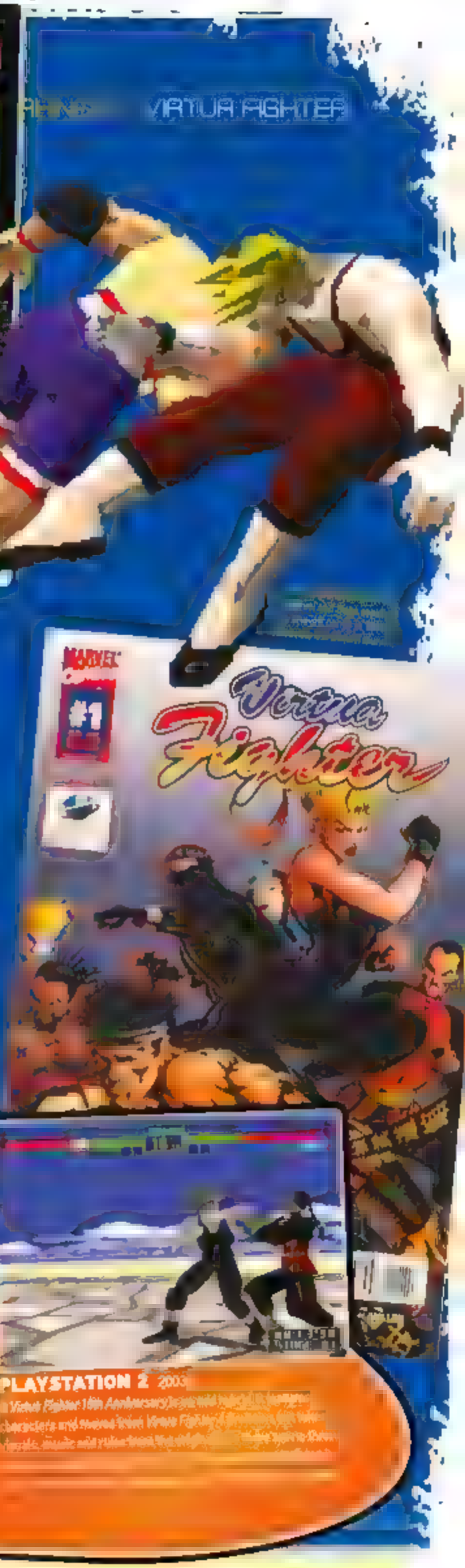
[illegible] arcade

32X 199[illegible]

Virtua Fighter's impres[illegible] animations and game design survived the conversion to 32X intact, even if the polygonal models [illegible]

[illegible] additional extras, including selectable opponent angles and [illegible] tournament mode





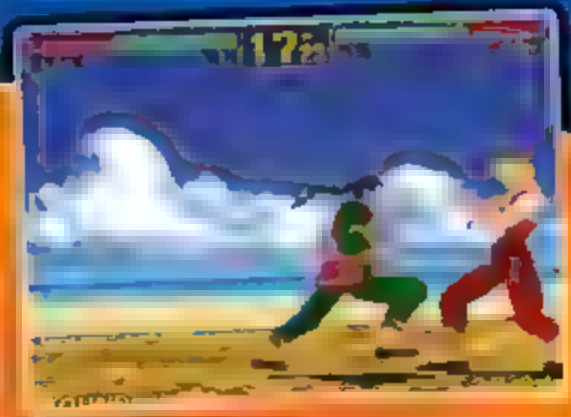
"The peculiarities of different fighting styles are quite distinct."
Yu Suzuki

weeks. I was overseeing the whole process, but other AM2 staff were in charge of the execution." When the characters did come in, the goal was to ensure that they felt significantly different from one another. "We did a lot of tinkering to differentiate the fighting styles and designs of the characters to bring about their individuality. The peculiarities of different fighting styles are quite distinct," Suzuki tells us. "Focusing first on Kuan Fa (Chinese boxing), we then added other styles like pro wrestling."

By the time of the game's first public showing at the JAMMA show in August 1993, the game's mechanics were in place alongside a roster of eight characters. "I thought eight different character choices would be about right. For one, I just like the number eight," says Suzuki, in an interesting aside). These included the tricky ninja Kage, powerhouses Wolf and Jeffry, all-rounders Jacky and Sarah and Chinese martial artists Lau and Pai. But the series' most recognisable character was nowhere to be seen – the eighth character was a Saudi Arabian fighter by the name of Siba. "Jacky was initially positioned as the flagship character as long as I remember," explains Kaku. "Then, Akira was added as we were to release this title in Japan first. I think it was a logical decision." Akira wasn't the only addition during this period, as other new models were created and added to the game, but he was the only one to survive. "They wanted to put more in, but as time was coming down, it was like, 'Okay, we gotta get this wound up and get it out'", Jeff explains of the late cuts.

Virtua Fighter was released in December 1993. Initial impressions were favourable, but not incredible. "I played this game for over an hour and couldn't find any special moves to tempt me away from Street Fighter II" opined Rik Skews in a review for Computer & Video Games. "Sega should be praised for pushing back the boundaries of arcade games, as it did with the R-360, but that game was all look and no gameplay and this is sadly much the same," he concluded, awarding the game 83%. But over time, opinions began to change. "When Street Fighter II appeared in arcades in early 1991, some games magazines dismissed

SATURN (REMIX) 199



PC 199

PLAYSTATION 2 2003

Virtua Fighter

Q&A: Michael Latham

The former Sega Of America producer explains how the 32X conversion was made

During early reporting on the 32X, the press seemed split on whether or not *Virtua Fighter* would actually be coming to the system. Was there ever any concern over the hardware being able to handle the game?

I think that split came from the fact that the core *Virtua Fighter* team had little interest in doing 32X as a platform. I think they viewed it as a platform that mattered more for the US/Europe than Japan, which wasn't unfair given different market conditions. So the project was given to a B team within Sega which would use the core code from the arcade team. They were instructed at this point to do a proof of concept, and once the *Virtua Fighter* team saw it came close enough, and under pressure from the US and Europe, they agreed to let the title move forward.

Which aspects of the original game were prioritised during the conversion process?

Once the project passed the proof of concept [stage] the core *Virtua Fighter* team focused on other stuff. Joe Miller realised this and dropped by my office. He said we need some wins on the 32X, and *Virtua Fighter* was a key title. He filled me in on the fact we had a young independent team doing the port in Japan and he wanted someone who would push them to create more than just a port. He wanted to prove that the 32X could deliver more than had been seen, while we all worked on US originals for it.

So my first focus was direct the team to ensure we nailed the gameplay first and worry about arcade reproduction nearly last. I had my best guys to help – Eric Quakenbush, Erik Wahlberg, and Bill Person on the US side. Going chip to chip we would lose, but we could make the game fun, responsive, and give more features for a console because the Japan team was open to all ideas. They worked their butts off like no other team I had worked with. We shared a common love of fighting games and they didn't have the anti-EC view the VF core had.

Was there a push to offer 32X players something over the existing Saturn version?

Yes that push came from myself and the rest of the US team. We had learned a lot

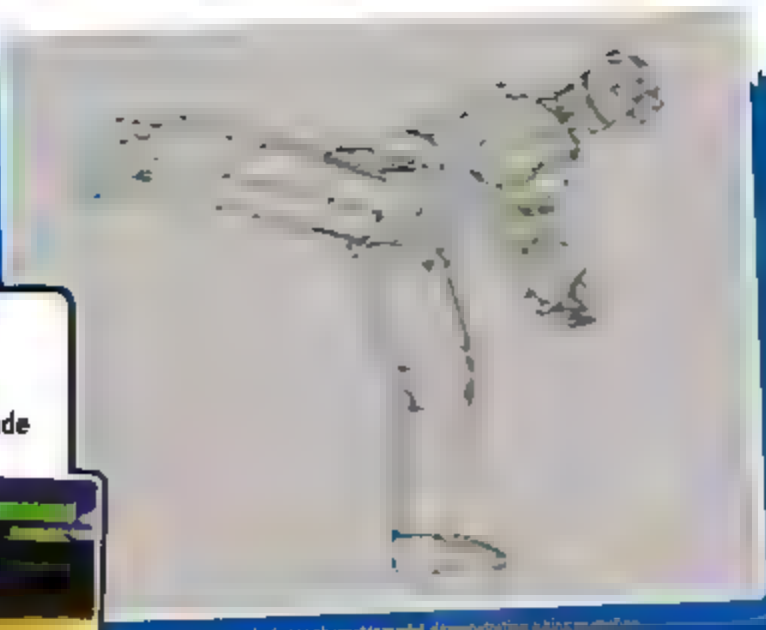
from *Eternal Champions*. We understood home console ports had limited long term replayability without adding competitive features. We also realised the arcade control of the camera was too limited and pushed to allow dynamic camera angles, and cheats allowed you to modify the physics of the game. So not only would the consumer get to play with this stuff it became a critical tool for our team to play balance and optimise the game on the 32X.

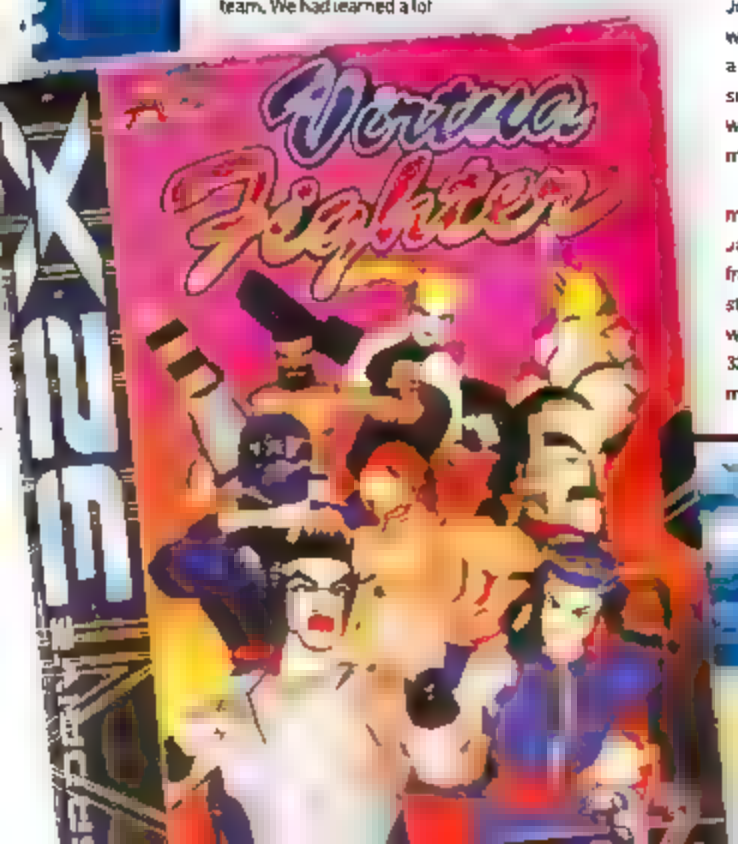
The 32X version of *Virtua Fighter* was well received, but arrived at a time when the hardware was struggling. Was the game seen internally as something that could help boost 32X sales, or had that ship already sailed?

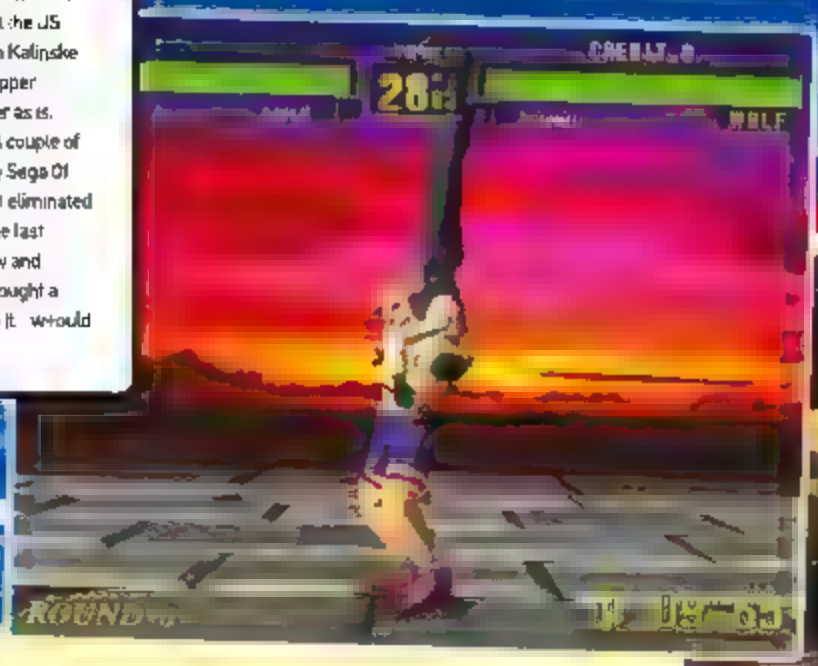
It was viewed as critical and for sure helped give the 32X a much needed bump, but the other planned titles were slowed or cancelled for the platform and the rest is history. I wish we could have made it a launch title. It would have likely allowed me and other Omega members to ship the US titles as the second wave. Losing the likes of *Virtua Hamster* is a bummer to this day.

I have mentioned that Sega Of Japan was not happy with the US and Europe focus on *Eternal Champions*, especially the *Virtua Fighter* core team. Well here's something I haven't fully explained before. When we got ready to ship the product, the *Virtua Fighter* core team was shown the final version. They were beyond angry. They didn't like all the additions and the game balance our side created. So much so I was called into a meeting with Joe Miller and Tom Kalinske where Sega Of Japan said we could not ship this version, we would have to wait for a new version which would strip everything out the US side had the Japan team do. Joe Miller and Tom Kalinske were having none of it and got Sega Of Japan upper management to relent and ship our gold master as is.

There was a deep price to pay for that day. A couple of months later *Eternal Champions 3* was killed by Sega Of Japan and the property was pretty much all but eliminated from Sega history. Now you know what was the last straw. I knew this risk but I bleed blue even now and wasn't about to let down our customers who bought a 32X or any title that shipped with our names on it. I would make the same choice today.







"Virtua Fighter had few expressive polygons"

The game did well in the West, but was hampered twice over. In the arcades, it wasn't as widespread as it could have been as it was an astronomical expense for all but the most wealthy of arcade operators – magazines of the time quoted deluxe Super Megalo sit-down cabinets selling for roughly £14,000. In the home, the high price of the Saturn hurt it, as did the appearance of the graphically impressive Battle Arena Toshinden as a PlayStation rival. But in Japan, Virtua Fighter wasn't just a game – it was a phenomenon. Top players like Shinjuku Jacky and Ikebukuro Sarah became notorious for their skilled tournament performances, and were tapped up to supervise detailed guide books on how to improve at the game. Then there were the tie-in products – the gameplay videos, the manga adaptations, the CD soundtrack, and later a full animated TV series. When Famitsu readers were asked to vote on their top 100 games in 2006, Virtua Fighter placed 33th. This put it ahead of many favourites, including Sonic, Metal Gear Solid, Pokémon, Super Mario World and Tetris. In fact, the only fighting games to make that list were Street Fighter and Virtua Fighter games.

Virtua Fighter's popularity was so great that as well as spawning a variety of direct sequels and spinoffs, Suzuki even considered using it as a launching point for his most ambitious project, a game then known as Virtua Fighter RPG starring Akira. "It was our first experience with a large-scale RPG, so rather than starting from scratch we thought it would be safer to build upon the reputation and elements of Virtua Fighter," he explains. "As we got further along in development, we judged that the content could be incorporated even as its own brand, so we separated the title from Virtua Fighter to make it into Shenmue. At that point, the main character was changed from Virtua Fighter's Akira to Ryo."

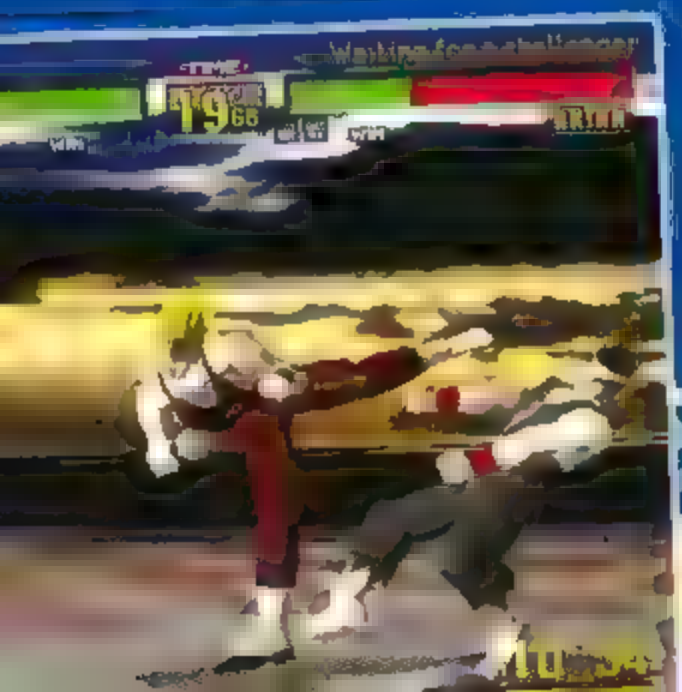
The legacy of Virtua Fighter extends far beyond its own direct lineage, though. Key staff member Seiichi Ishii left Sega after the completion of Virtua Fighter, and ended up becoming director and main designer for Namco's Tekken, which became the primary competition to Sega's 3D fighting series. He later founded Dream Factory, creating further 3D fighters including the Tobal games. Dead Or Alive was also strongly influenced by the early Virtua Fighter games, and acknowledged this directly with crossover characters Akira, Pai, Sarah and Jacky in the Dead Or Alive 5 series. Even those games that didn't have the benefit of former Virtua Fighter staff owe the game a debt – the game's odd jumps, juggle combos, ring out victories and lack of projectiles were idiosyncracies in 1993, but many 3D fighting games in the years to come would follow the leader by including them.

Looking back at Virtua Fighter, it's clear that the staff appreciate the importance of what they had created, while being unafraid to note its shortcomings. Virtua Fighter had few expressive polygons and was hamstringed with impotent machine power, causing low character aspect and angular features," says Suzuki. "It was quite a trial starting out with characters that looked like they were made from cardboard boxes. Bringing any kind of beauty to the female characters was particularly taxing, seen in how stiff Pai turned out!" But everyone needs to walk before they can run, and Virtua Fighter was an important first step. "By the time we got to Virtua Fighter 2 we were able to use textures which helped bring everything together a bit better. It is quite something to consider just how unimaginable it was to get to characters as realistic as they are in the newest Virtua Fighter when they started out like that in the original Virtua Fighter," he adds.

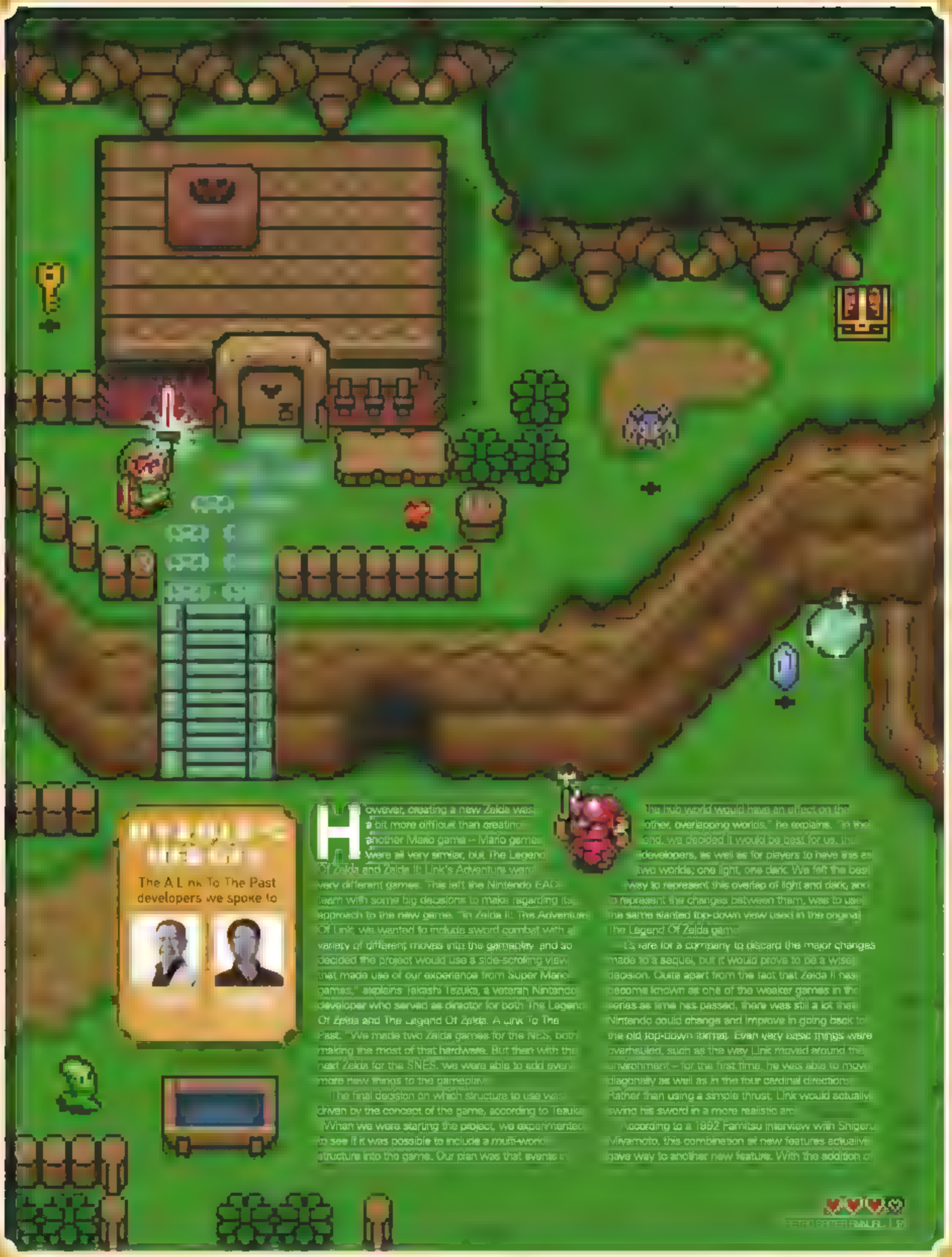
For Kaku, the main issue was bugs. "A few moves and techniques can be performed using unexpected timing and button input. In a word… bugs. However, these bugs still maintain the game's balancing, which is very unusual. These little touches make me believe Virtua Fighter stands on its many unusual miracles," he notes, before explaining why he remains so fond of the project. "It was an exciting experience to work with such cutting-edge technology as a programmer. I could learn the inner workings of real-time CG before anyone else, which was a huge boon for my career after the project. Releasing the world's first 3D CG fighting game is my most cherished achievement."

Ah yes, the first 3D fighting game. Virtua Fighter might not actually hold that title, but everything beforehand is the domain of pedants and trivia buffs – Virtua Fighter is the first one that mattered, and that's why it's such an easy mistake to make.

Special thanks to Yu Suzuki, Franck Sebastien and Danny Russell for making this article possible.



THE LEGEND OF
ZELDA
A LINK TO THE PAST



However, creating a new Zelda was a bit more difficult than creating another Mario game – Mario games were all very similar, but The Legend Of Zelda and Zelda II: Link's Adventure were very different games. This left the Nintendo EAD team with some big decisions to make regarding its approach to the new game. "In Zelda II: The Adventure Of Link we wanted to include sword combat with a variety of different moves into the gameplay and so decided the project would use a side-scrolling view that made use of our experience from Super Mario games," explains Takashi Tezuka, a veteran Nintendo developer who served as director for both The Legend Of Zelda and The Legend Of Zelda: A Link To The Past. "We made two Zelda games for the NES, both making the most of that hardware. But then with the next Zelda for the SNES, we were able to add even more new things to the gameplay."

The final decision on which structure to use was driven by the concept of the game, according to Tezuka. "When we were starting the project, we experimented to see if it was possible to include a multi-world structure into the game. Our plan was that events in the hub world would have an effect on the other, overlapping worlds," he explains. "In the end, we decided it would be best for us, the developers, as well as for players to have just two worlds; one light, one dark. We felt the best way to represent this overlap of light and dark, and to represent the changes between them, was to use the same slanted top-down view used in the original The Legend Of Zelda game."

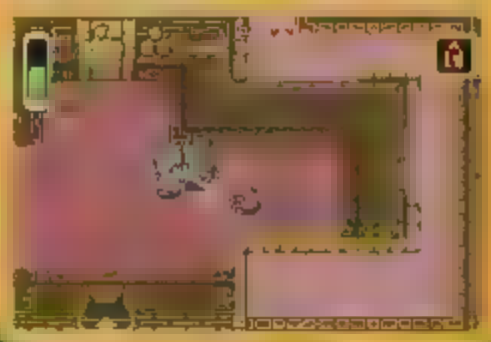
It's rare for a company to discard the major changes made to a sequel, but it would prove to be a wise decision. Quite apart from the fact that Zelda II has become known as one of the weaker games in the series as time has passed, there was still a lot that Nintendo could change and improve in going back to the old top-down format. Even very basic things were overhauled, such as the way Link moved around the environment – for the first time, he was able to move diagonally as well as in the four cardinal directions. Rather than using a simple thrust, Link would actually swing his sword in a more realistic arc.

According to a 1UP2 Famitsu interview with Shigeru Miyamoto, this combination of new features actually gave way to another new feature. With the addition of

LINK'S ARSENAL

LINK SHRINKS

The only part of Link's 16-bit adventure received some major upgrades...



“Shigeru Miyamoto requested that Link always have the sword equipped”

BOSS RUSH

"Our main aim was to show the birth of a hero in a scene fitting of a Zelda [game]"

Takashi Tezuka

...is an instant classic. Critical praise was unanimous – Computer & Video Games awarded the game 89% noting that, "the elements of strategy and adventure are added treats rather than annoying extras." A review in Mean Machines scored the game 96% and declared it "simply the greatest exploration/adventure game available for a console," while Super Play Gold's 93% review noted that "you're unlikely to want to switch the game off". The game sold a massive 4.61 million copies on the SNES, and ultimately spawned both a successful release on the Game Boy Advance as well as a successor for the Nintendo 3DS, The Legend Of Zelda: A Link Between Worlds.

Despite the excellent quality of The Legend Of Zelda: A Link To The Past, it would ultimately prove to be the end of the line for the Zelda series as players had known it, as the series was about to undergo a radical change. The next mainline sequel was The Legend Of Zelda: The Ocarina Of Time, which transformed the series with open 3D spaces and more. While smaller 2D Zelda games would continue to appear on the Game Boy platforms, including the excellent Link's Awakening, Oracle Of Ages And Oracle Of Seasons and The Minish Cap, there was never another 2D Zelda game to get the big budget treatment that A Link To The Past received.

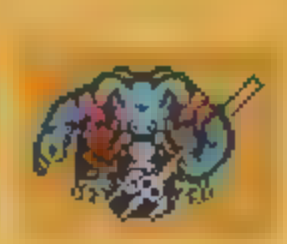
But that's not to say that A Link To The Past hasn't had a lasting influence, not by a long shot. Elements from the game including the spin attack, the Hookshot and the Master Sword have become series regulars, and that dual-world concept has been revisited very frequently – just look at young Link and adult Link in Ocarina Of Time, or human Link and wolf Link in Twilight Princess. The third Zelda game is as tightly woven into the legacy of the series as any of the other major entries.

Ultimately, The Legend Of Zelda: A Link To The Past is one of those rare games that not only achieved critical and commercial success, but has stood the test of time and continues to attract new fans today. How does the team feel about the sustained success? "We're truly thankful, and consider it a great privilege," Tezuka says, but he's careful not to rest on his laurels. "At the same time, it also drives us to create new games that will surpass this acclaim."

I AM ERROR.

The story behind one of gaming's most infamous secrets

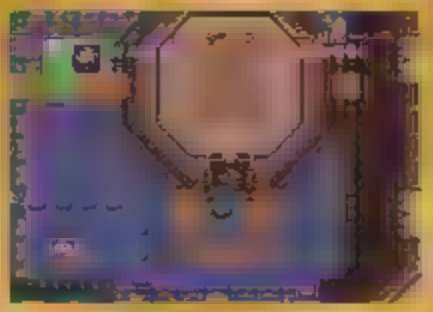
Spiders leap out from the Dark World, and you won't see any other humans.



THE WORLD

Here's a look at the key locations Link will visit as he becomes a hero in the Light World

■ This is where you'll find the Master Sword, truly

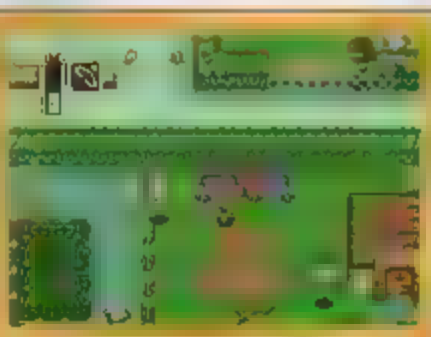


HERA TOWER

■ Atop the mountain, this tower [illegible] standard you'll need to obtain the Master Sword. You'll need the Moon Pearl to access here, too

HYRULE CASTLE

■ This is where Princess Zelda is being held at the beginning of the game, and where you'll later fight Agahnim. The boomerang can be found here, too

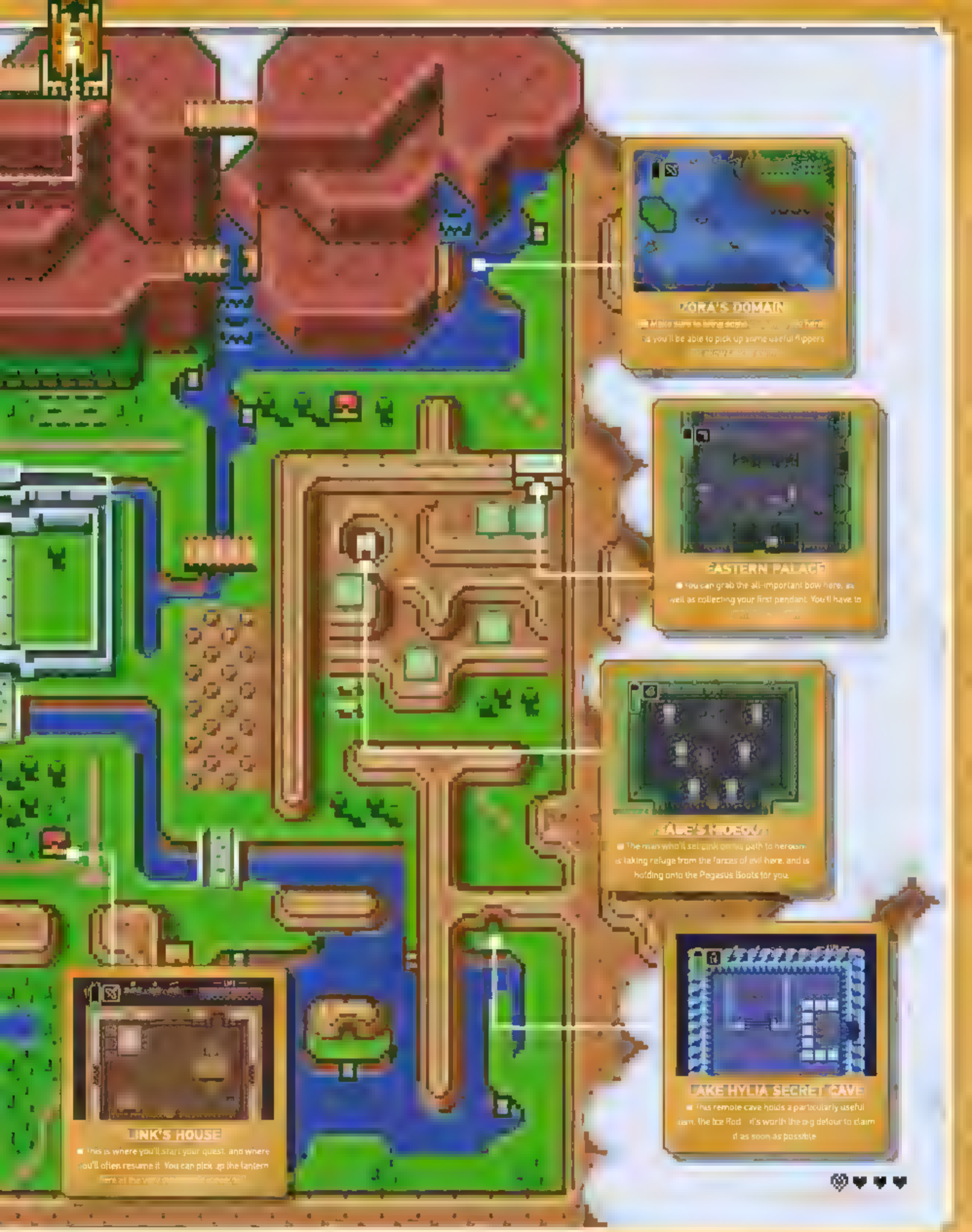


KAKARIKO VILLAGE

[illegible] residents of this village are terrified of Link, and some will summon guards to

DESERT PALACE

[illegible] power of the Book of Mudora [illegible] which will [illegible]


ZORA'S DOMAIN
As you'll be able to pick up some useful flippers
EASTERN PALACE
You can grab the all-important bow here, as well as collecting your first pendant. You'll have to
LINK'S HOUSE
This is where you'll start your quest, and where you'll often resume it. You can pick up the lantern
LAKE HYLIA SECRET CAVE
This remote cave holds a particularly useful item, the Ice Rod. It's worth the big detour to claim it as soon as possible

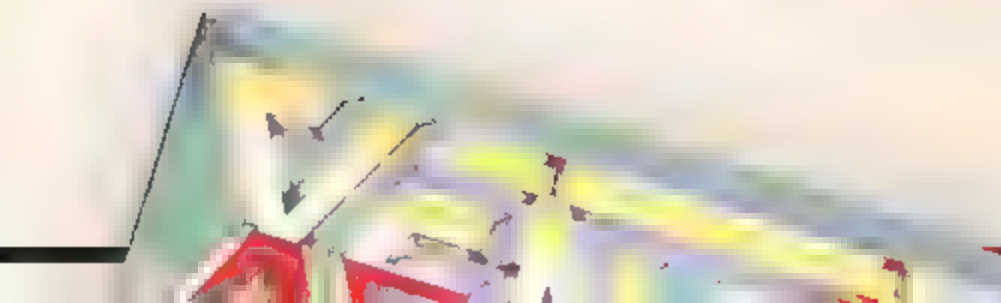
The Rise Of The
AMIC

Amiga 500

As central as the Amiga 500 is to computing in the UK, it almost never existed. Now, on its 30th anniversary, Kim Justice details how the A500 survived company shake-ups and fierce competition to become the defining computer of the late Eighties

Commodore had a bad year in 1985. The American company from West Chester, Pennsylvania lost $113 million over the course of 12 months, and a lot of its staff had jumped ship to its fierce rival, Atari now owned by Commodore's former CEO Jack Tramiel, the man who Commodore chairman Irving Gould had fired in 1984. His replacement, an ex-steel executive by the name of Marshall Smith, had paid the price for Commodore's failings. Previously the top dog in the computer market thanks to the C64 Commodore was now on the ropes and its latest computer the Amiga 1000 had floundered and sold badly. It was tough to see just what the future held for the company, and anything from a future producing IBM PC-compatibles to bankruptcy was predicted.

It is quite something to think that the Amiga's story could have ended here, before it even reached the shores where it would truly make its name. Indeed the Amiga was so popular in the UK that it's hard not to think of it as a European computer considering how much of the best games and best software for it ▶



AMIGA 500

Killer games

APIDYA
992

■ A very colourful, *Gradius*-inspired horizontal shooter where you control a deadly bee and blast the hell out of other insectoid-based ships. *Apidya* is notable for coming with a killer soundtrack, courtesy of composer Chris Huelsbeck.

BATTLE SQUADRON
1989

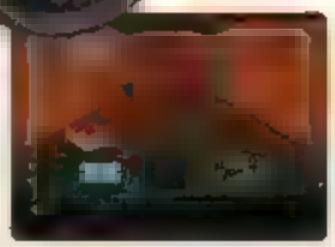
■ This vertical shoot-'em-up received a very poor port to the Mega Drive, but was one of the best on the Amiga – a classically difficult old school space shooter with plenty of travelling through fortresses, cityscapes and the innards of aliens.

BILL'S TOMATO GAME
992

■ Essential Rube-Goldberg-esque puzzle game where you have a brief time limit to try and position platforms, trampolines and lord knows what else in order to get a tomato from A to B. The Bill in question is Bill Pullan, designer of the game.

BLOOD MONEY
1989

■ One of DMA's first successful titles, the folks who gave us *Lemmings* also gave us this tough shooter where enemies fly at you from all sides. It comes with an iconic spoken intro, classic soundtrack and DMA's typically zany sense of humour.



HUNTER
199

■ This game was pulling off an open world in 3D long before anyone else, allowing you access to multiple types of vehicle and the ability to interact with people and bribe them for information. It's considered a precursor to what *GTA* would eventually become.

Making waves

We chat with ocean's Gary Bracey about the Amiga

What did the Amiga 500 offer over earlier Amiga models?

I think price was a major feature, and the form factor was very attractive, too, [illegible] one', with disk drive, etc...

What made Ocean focus on the Amiga 500?

When Commodore started their push with us, we believed it would be a very successful home computer and so we offered our support in terms of making compatible games for it.

Where you concerned about giving Batman away free in the Batman Pack?

Not at all as they paid us per unit [illegible] we didn't receive as much for each sale as usual, but we knew that the quantity would be significant.

Did Amiga games require more development?

[illegible]

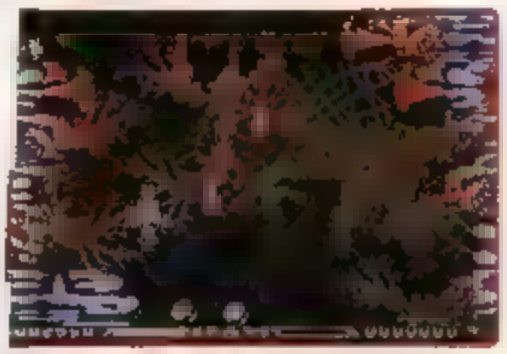
Why do you think that so many Amiga Ocean arcade conversions were so good?

Due to the processing and graphical power we were able to emulate the fidelity of the original arcade games and so able to create very faithful emulations of those games.

▶ came from Europe. In America, it remains something of an obscurity – the Amiga line would struggle for momentum in a slowly-recovering market where IBM PC-compatibles were gradually taking over businesses and Nintendo held a near-monopoly on videogames with the NES. It took until 1989 for the computer to receive one final major advertising push, after which it effectively ceased to exist in its own country – a far cry from what happened to the Amiga in Europe during the same period. Those people who'd worked so hard on building the system were all too aware of what was occurring elsewhere, in places like Australia, Germany and the UK. Jeff Porter, Commodore's director of product development, and the man who led the creation of the A500, recalls: "All of the Apple Guys thought that the Amiga needed to be sold in high-end business computer stores. Really, it's a friggin' games machine. Sell it in Toys 'R' Us like the C64 and they'll fly off the shelf. That's one thing that Commodore knew how to do – sell low-cost home computers. So, I had a battle every day with the US sales company to buy into that strategy. Fortunately, Germany and the UK, for the most part, bought into that vision lock stock and barrel. Winfried Hoffmann, CEO, Commodore Germany, I took one look at the A500 and said, 'I know how to sell this baby. Give me five, I'll show you.' And he did."

> **"I had a battle every day with the US sales company"**
> Jeff Porter

The man who would inherit Commodore's sad state of affairs was Thomas Rattigan, former CEO of PepsiCo. Thomas' main aim was to cut costs and bring Commodore closer to profit, but also to oversee new plans for the Amiga line that would keep it going. The solution, as announced by Thomas in January of 1987, was to introduce two new computers – one of them, the Amiga 2000, was a high-end model, a powerful machine built for businesses and those who wished to create. The other was the low-end model, entirely catered towards the home market with the requisite power at a competitive price – this computer would be the Amiga 500. Jeff Porter would head up the production of the A500, in spite of protests from the original Amiga team. "The biggest challenge was that the guys that built the A2000 thought I was killing their baby – it was already dying. After investing $55M and only selling 77000 machines, the ROI – return on investment – was not too good.

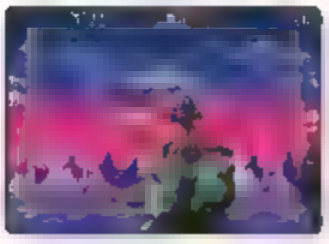


■ Ocean's Gary Bracey [illegible] think of the excellent Amiga [illegible] arcade conversions?

LIONHEART

1993

■ Thalion's hack-and-slash is a pretty good contender for the title of prettiest game on the Amiga, with beautiful worlds that are still striking to this day. With lengthy, involved levels and a whole load of enemies to encounter, the gameplay's no slouch either.



MOONSTONE: A HARD DAYS KNIGHT

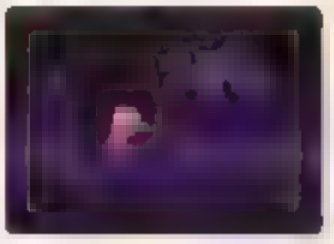
1991

■ An RPG for as many as four players where you try to find the keys to the kingdom. One of the more unique Amiga exclusives, and also one of the gorier too – there's no end of heads and limbs flying all over the shop.

PROJECT-X

1992

■ A frenzied shooter by Team17 that's quite possibly the most difficult of all the Amiga shooters. The challenge was such that most people couldn't manage to get further than the second level. There is a special edition that tones the challenge down somewhat.



TURRICAN II: THE FINAL FIGHT

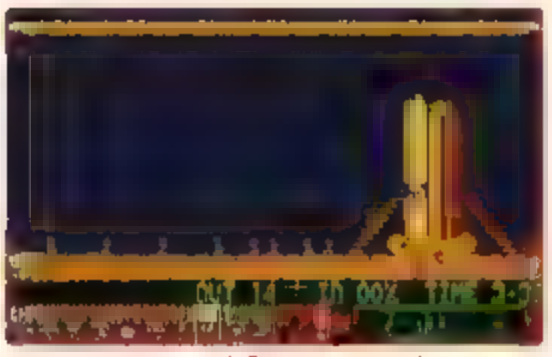
1991

■ This is arguably the greatest entry in Rainbow Arts' classic series of action platformers, filled with lengthy levels and secrets. Despite appearing elsewhere, Amiga *Turrican II* is the only proper 16-bit version of the game.

WAXWORKS

1992

■ A dungeon crawler where you travel through time in order to break a witch's curse. Well remembered not only for its level of difficulty and the atmosphere of its surroundings, but also for the still somewhat scary lo-fi brutality of its death screens.



Fireblinds was a huge turn-loss for Psygnosis and it soon had DMA design creating sequels and add-on disks.

The main difference between the A500 and the A1000 was in the streamlined design – the A500, much like the parlor Commodore 64 and 128, would have an integrated keyboard and external 'brick' power supply. In most other ways, however, the insides of the 500 were similar to the original A1000, with the same 512K memory out of the box and Motorola 68000 chipset. The big difference between it and the A2000 was expansion – the A2000 came with several slots for the likes of Video Toaster cards and extra floppy drives, whilst the A500's expansion capabilities were mostly limited to upgrading the RAM. But this fit the A500's streamlined philosophy – it would have everything a user needed out of the box, with all possible upgrades being completely optional. It was also considerably cheaper for Commodore to produce. "Because I came from the Commodore side of things, I knew Commodore's manufacturing very well," Jeff elaborates. "External brick power supplies were super cheap, integrated keyboards were super cheap. Two-layer motherboards were super cheap. I got MOS Semiconductor (Commodore's chip fabrication division) to put the chips in plastic packages and improve the yields. And I knew the speed of all of the equipment in the factories, so I optimised the component selection to never have a bottleneck in the production line. Bottom line: Costs for the A1000 at $600+ got reduced to $200 for the A500 – thanks to me. We sold it for $400, and street price was $500. That's pretty amazing margins, and the rest is history."

In spite of much-needed production improvements there was always a level of disarray back home ▶

Pushing pixels

We have a chat with Ocean's graphic artist, Simon Butler

What was it like creating graphics on the Amiga, after moving from the 8-bit systems of the time?

I recall it was a shock to the system to have so many colours and for sprites to be so much bigger after the horrible constraints of the 8-bit machines. It took a bit of getting used to, but it was just another part of the learning curve. I know that I relished the opportunity to push the animation a lot more than I had previously. That was great fun.

What art packages (if any) did you use and how effective were they?

It was the standard, Deluxe Paint. It did everything a games artist or even a hobbyist could ever require. I was still using it long after I had moved onto PC titles and was only forced to move onto another package many years later in order to retain a contract. To be honest, I was marginally proficient compared to a lot of people, and when I see some of the artwork created by today's artists it takes my breath away.

What companies managed to get the best out of the Amiga in terms of visuals?

I suppose the first game you think of is Psygnosis. They really did push things graphically, but for me that was also their main fault. I saw them as being the perfect example of style over substance. The Bitmap Brothers were also a team that truly stamped their own graphical style across every title they developed. There were some amazing graphics during the 16-bit era, but benchmark teams? Psygnosis and the Bitmaps.

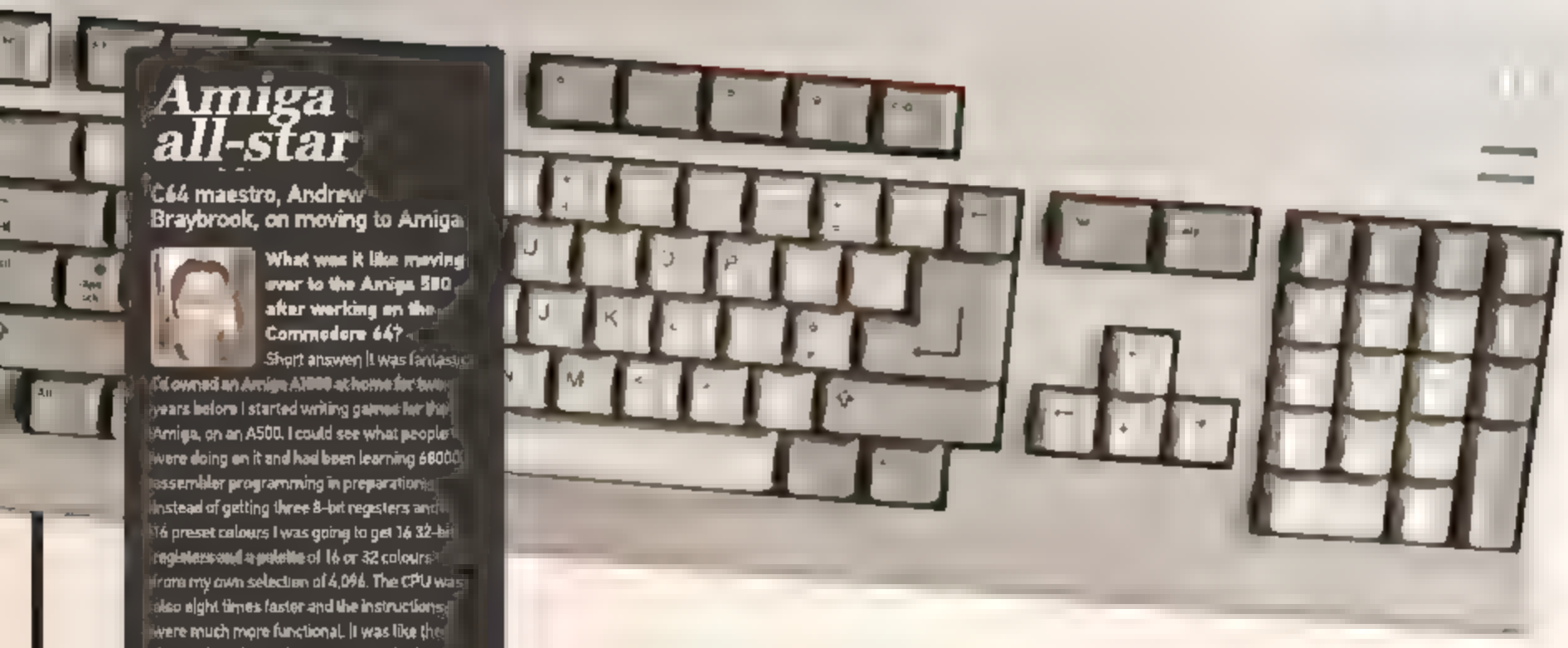
Which of the Amiga games that you worked on are you most proud of?

I would have to be *Addams Family*. It's the game I enjoyed working on most in my entire career. Great team, amazing design and freedom to do whatever I wanted. Fantastic times.

Why did you return to the Amiga in 2012 to start work on the *Sqrxz* series?

Money, pure and simple. Being a 2D pixel pusher, I have painted myself into a very small pixelated corner of the industry where I have struggled for long periods without work. In 2013 I was approached to do some pixels for a game I knew nothing about called *Sqrxz*. It was quick, cheap and cheerful and, over the years, I have been called upon to change the graphics for a variety of versions.

AMIGA 500



Amiga all-star

C64 maestro, Andrew Braybrook, on moving to Amiga

What was it like moving over to the Amiga 500 after working on the Commodore 64?

Short answer: It was fantastic. I'd owned an Amiga A1000 at home for two years before I started writing games for the Amiga, on an A500. I could see what people were doing on it and had been learning 68000 assembler programming in preparation. Instead of getting three 8-bit registers and 16 preset colours I was going to get 16 32-bit registers and a palette of 16 or 32 colours from my own selection of 4,096. The CPU was also eight times faster and the instructions were much more functional. It was like the driver of an old Ford Anglia waiting for his Lamborghini to arrive.

How do you feel the Amiga enhanced your games?

Firstly we could visualise more clearly what we wanted to show in the games. We'd been working with various colour limitations on the C64, as well as memory limitations. We only had space for about 192 sprite images so we were always hitting the buffers there. The Amiga had 512K of RAM, which was also all video RAM so although the code was bigger on the Amiga, it was a lower percentage of the total space. The sound was also more controllable because it was playing real samples, and we had an extra sound channel.

What was it like to code compared to the home consoles of the time?

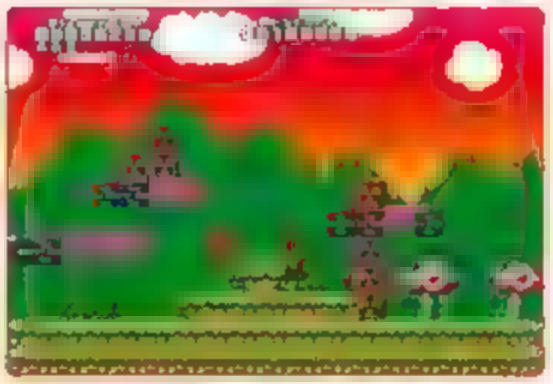
The home consoles were still technologically on a march. Rod Mack was working on our football game on the SNES, which could do more tricks with the playfield (rotation, scaling). Also, the consoles held all of their character modes that the C64 had, and that arcade games had used so well. All platforms tended to have a software and hardware development kit, so they were getting more expensive. Being locked to bitmap modes on the Amiga, although it gave a lot of freedom, meant that the screen was much bigger.

What's your favourite Amiga 500 game by another developer?

Turrican II for sure. The Factor 5 guys pulled out all the stops, with Chris Huelsbeck doing seven-channel music, hardware sprites, plenty, ingenious scrolling technique that they shared with us for *Uridium 2*, big play area, great playability – very nice.

"The Amiga, like the C64, was a games machine"

David Mowbray



Captain Planet in a very special Valhalla level that was a good fit for an Amiga puzzle

▶ that would throw things off track and frustrate Commodore's world renowned engineers. UK and Europe got it, Jaff says. The US did not. It should've fired all the Apple execs that didn't know how to sell a $500 games machine and given the product to the C64/C128 sales guys that sold computers by the semi-trailer-load to retail. Thomas Rattigan's announcement of the new Amigas was just about the last thing he did before inexplicably being fired by Irving Gould, who then took over the C.E.O job from his home in the Bahamas. While there was always trouble on the home front, Commodore's international hubs were largely run autonomously, only ever seriously communicating with Commodore HQ a couple of times a year. And so Commodore's UK hub enjoyed a comparatively serene existence. It hadn't topped the market up to this point, but the C64's sales were enough to make it one of the most popular computers on the market. As the last generation's micros wound down, Commodore's European divisions were eager to get the new Amigas out there, believing them to be more than capable of getting the top spot. It wouldn't be straightforward, though – the Atari ST had successfully penetrated Europe, becoming the leading 16-bit computer on the market. STs were selling well in the UK. More than that, Atari had both created a market for the ST in France that it would never let go of, and overtaken Commodore in West Germany – once Commodore's European stronghold. At this point, the Amiga had barely broke the market at all, and Atari had enjoyed a huge head start in the region – overhauling Atari's ST certainly wasn't going to happen overnight.

Looking at the main statistics, the Amiga and Atari ST are very comparable, with both computers based on the Motorola 68000 microprocessor. Indeed, when you consider that most computers were marketed based on memory at this time and Atari was already offering 2MB and 4MB ST models before anybody else, it could be said that the ST – in this very sellable regard – was the more powerful machine. But the Amiga had a couple of tricks up its sleeve that, before too long, would start to show the difference. Its Agnus chip was very powerful, and, in particular, included a dedicated blitter that could run graphics routines without any strain on the computer's main memory, and a copper chip that allowed for multiple video resolutions and colour depths to happen on the same screen. The main video processor, "Denise", could split the screen area into multiple bit planes, allowing for as much as 32 unique colours on the screen at

Kleain: Its frenetic Alien Breed from 1990 was one of many games that defined the Amiga 500

once. David Mowbray, previously a programmer at Flair Software, explains how this benefited games. "The Amiga, like the C64, was fundamentally a games machine. The machine was just more friendly than the ST, when you're making a game – even on the screen itself, everything was separated onto different Bitmap planes, so, for example, you could have 16-colour art but have one of the planes just for your parallax layer."

Alongside Agnus and Denise was the third chip, Paula, which was responsible for sound and contained four sample-based sound channels, wholly different to the Atari ST which relied on a four-channel AY synthesiser chip. Chris Huelsbeck, a composer who worked on games such as The Great Giana Sisters and the Turrican series, explains the possibilities. "The Paula chip was really straightforward," he begins. "Its great power was in the capability to play recorded or digitized instruments and sound effects – essentially there was nothing in terms of audio or tones that you could not get out of the Amiga – the only limitation was memory and channels, and even then on that front we found ways to enhance it. One of those ways, funnily enough, would involve the use of an Atari ST – the A500's fiercest rival was an integral part of Chris' 'seven-voice' system that seemed to, as if by magic, nearly double the amount of channels the Amiga had," Chris says. "My colleague and

Gods were, if you saw Defenders Of The Crown running on an Amiga 500 you'd most likely try to work out a way to own one

Trouble in paradise

Jeff Porter talks about turbulent times at Commodore

What was the situation like at Commodore before the announcement of the A500 and 2000?

Things were pretty dire. The A1000 was critically acclaimed but financially a bomb. At $1,295, it was too expensive as a home computer, and wasn't expandable enough to be a business computer nor did it have mainstream business apps. So the A500 at $500 filled the home computer void, and the A2000 filled the 'can't expand this sucker' void. Although it took the better part of a year to pivot that way – the results speak for themselves. It was the right thing to do.

As head designer for the A500, how often would you interact with CEO Thomas Rattigan?

He was relatively hands-off. Of course there would be high-level meetings where the end result was, 'Jeff and his team just need to work a little harder and faster.' I remember one meeting where him and Marshall Smith had summoned everyone from R&D both in PA and CA to West Chester. Rattigan put his feet up on the boardroom table and said, 'Marsh, what do you think the most important thing for engineering to be working on now? I think it's the cost reduced C128D.' You can imagine the [illegible] coming from the Los Gatos team [illegible] kidding me? Did he really just say that to the entire senior R&D staff of the Amiga? Yes, he did.

Was there any perception inside Commodore that the A500 was a downgrade from the A1000?

Lots of fights with the Los Gatos crew. I kept hammering on the $500 price point at retail – $20 more for a detachable keyboard, $30 more for an internal power supply, $20 for a keyboard garage, you just blew the budget, guys! Sorry. Plus Jack and the Atari ST were just starting to eat our lunch and we had to attack with a product that could kill the ST. That last argument cleared the way with everyone at Commodore to let me build the A500.

In what ways did you feel that the A500 improved on the A1000?

Obviously [illegible] improvement – same circuitry and same performance, but at a way cheaper price. I personally selected the keyboard – NMB real key switches. I loved that keyboard. I'm a pretty quick typer and I could just fly on that baby, that got cost reduced after the first year, but hey, the A500 was already a huge success by then to create very faithful emulations of those games.

Marketing magic

Commodore marketing director David Pleasance on the Amiga

What gave the Amiga 500 a better commercial edge over previous systems?

My belief is that it was the way we positioned our marketing – aimed squarely at our target audience – which was the slightly older child, perhaps getting ready to study for critical exams, from middle class or higher socioeconomic families whose parents wanted to be seen to be responsible enough to equip their child with the latest and best technology.

How did you strike the deal for the Batman pack?

I had heard that Ocean Software had just been to Hollywood and had paid out $1 million just for the right to use the *Batman* movie title for the game they intended to produce. So I set up a meeting with David Ward and Jon Woods (joint managing directors of Ocean) along with Colin Stokes (sales director) and Paul Patterson (sales manager).

I told them, 'I am going to make you a proposition that you will either have the balls to go along with or you will send for the men in white coats to come and take me away.' I told them that I planned to produce a pack – which if they said yes to me – [that] would feature *Batman* all over the box, and that the fact that there was an Amiga 500 inside was almost incidental. I promised [we Commodore] would be spending a massive amount of money marketing and promoting the pack, [in conjunction with their own marketing parameters so we had a massive joint approach].

I said, '1) I want you to give me the game exclusively in my pack for two months before you release it as a game on its own; 2) I want to pay you very little money for it, and 3) I am only prepared to commit to 10,000 pieces.' Ocean expressed concern on two fronts: they were worried their dealers would be angry that the only way their customers could get hold of the game would be by buying a *Batman* pack [and they] had estimated it was going to cost them a further $1 million to actually produce the game, and were concerned this activity might affect the volume of games they had calculated they needed to sell in order to [make] a profit.

I explained to them that I personally felt if the promotion was successful – the dealers would actually be delighted, as they would be selling lots of £400 packs instead of lots of £40 games. I explained that with my massive marketing budget added to theirs we would take over the retail channels completely, and I was confident they would do better overall if they decided to work with me.

Well they did have the balls to do it and the net result was, 1) Their dealers ended up much more than happy; 2) Ocean sold five times the volume they had estimated they would sell; 3) Commodore did not take just 10,000 pieces of *Batman* – we ended up taking 186,000 pieces – because that is how many Batman Packs we sold in the 12 weeks period to Christmas!!!

What was Commodore's relationship like with Ocean after that?

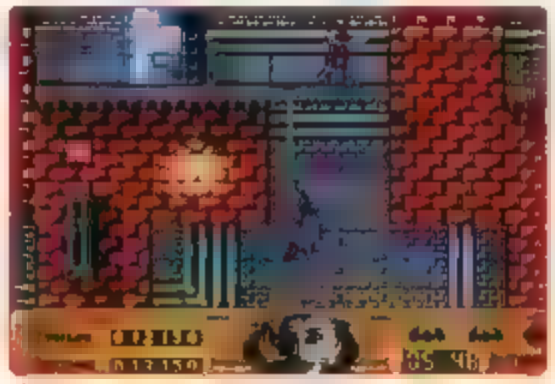
Absolutely fantastic. I can also say after the success of the Batman Pack I was approached by a vast number of games developers and publishers who would do almost anything to have one of their products included in [our] forthcoming packs.

Why do you think the system is so fondly remembered by gamers?

My opinion is that we released this incredible (easy to-use) multitasking technology at exactly the right time. The world's youth were desperately hungry for something new, something which allowed them to show off and illustrate their creativity – and just take a look – all around the world we have many thousands of Amiga fans, many of them now holding senior positions in huge companies. I am so proud to have contributed my small part in this legacy.

▶ friend Jochen Hippel coded the kickass core of the ST CPU mixer in order to play back four-voice Amiga music on the ST. With his blessing, ported that back onto the Amiga and it was used first in the Turrican Title Theme, which to this day remains one of my best-known pieces." Essentially, a four-voice piece of music would be programmed on the ST, mixed down and then played back on the Amiga using only one of its channels, leaving three extra channels open.

Together these chips would make up Amiga's Original Chip Set, or OCS for short. While the OCS had so much potential, it took time to fully realise this. The Amiga's earlier games, while flashy, were still traditional computer titles – a game like Cinemaware's cutscene-filled strategy title Defender Of The Crown, for example, was impressive compared to other computer games, but still very much a computer game – a strategy game and one not very different from its Atari ST version. Arcade ports, on the other hand, were often worked on by small teams with limited time and resources at their disposal, so with the Amiga and ST both being 68000-based computers, ports of arcade titles – such as Out Run and Super Hang-On – were similar on both platforms and would not take advantage of the Amiga's features, often leading to them being described in magazines as 'ST ports'. It would take a couple of years until people would harness the Amiga's power to make original arcade-style shooters and platformers that were of similar quality, if not better than anything that could be found on consoles at the time.



▶ Of the earlier Dream Factory titles, the less-than-perfect conversion of Barbarian would make the Amiga into a superstar.

Defining developers

BITMAP BROTHERS

FIRST AMIGA RELEASE: 1988

■ Famed for hi-octane, futuristic games with soundtracks that could be club favourites, Bitmap Brothers gave us the likes of *Xenon 2*, *The Chaos Engine* and the *Speedball* series. Nearly every game that it released for the Amiga was a hit.

BULLFROG

FIRST AMIGA RELEASE: 1988

■ The land of Peter Molyneux, and home of the God game in the form of *Populous*. Not content with just that, it also released games like *Powermonger*, *Syndicate*, and *Theme Park*. Ultimately, Bullfrog was acquired by EA.

CINEMAWARE

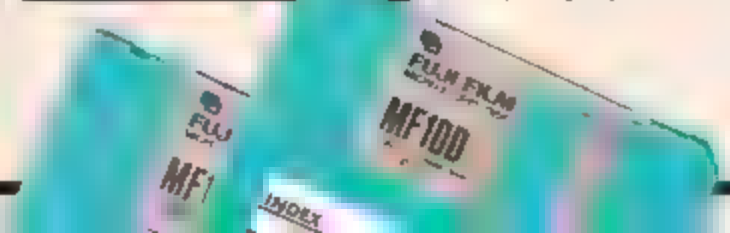
FIRST AMIGA RELEASE: 1987

■ One of the Amiga's original big developers. Cinemaware released cutscene-heavy games with minigames and a big emphasis on story, such as *Defender Of The Crown*, *It Came From the Desert*, and arguably its best title, *Wings*.

GREMLIN INTERACTIVE

AMIGA DEBUT: 1988

■ A studio that was successful throughout the Amiga's lifespan in a wide variety of genres. It made racing series such as *Lotus* and *Top Gear* and sports games like *Premier Manager*, but arguably its most successful title was 1992's *Zool*.



"It was like a turbo C64 in how it was put together"

David Mowbray

Things really started to shift in favour of the Amiga in 1989, as several games showed just what power the Amiga had lurking within. Psygnosis' Shadow Of The Beast is a major example, using the Amiga's copper chip to create a multi-layered landscape filled with parallax scrolling that ran smoothly. Simply put, the Atari ST didn't have these tricks at its disposal – while it could handle vertical scrolling fine, horizontal scrolling required almost everything on screen to move at once, making it slow and jumpy by comparison. While the development of the original Amiga had happened outside of Commodore, the A500 was in many ways an evolution of the C64, sharing a lot of its more coder-friendly aspects, such as hardware sprites and scrolling, as well as its slick, integrated, games-friendly design. In the end, a lot of the people who had previously preferred Commodore's old system found themselves drifting towards its new machine. David Mowbray had experience with both. "The Amiga was more in the vein of what I was used to," he says. "I learnt 68000 assembly language and software sprites on the ST and none of the hardware scrolling that I'd had on the C64 was there. It was a bit like the Spectrum – a very different way of working. Going from the ST to the Amiga was like going back home again. It was like a turbocharged C64 in the way it had been put together."

Shadow Of The Beast was one of many pioneering games released for the Amiga in 1989, a year that also saw the release of Lemmings, Xenon 2, and Populous. These games would become synonymous with the Amiga and would set it out as clearly the superior games machine to the Atari ST, but games alone weren't enough – the computers themselves needed to start flying off the shelves. Commodore's American HQ had largely disregarded the games market even after the launch of the A500. Jeff: "We walked away from our shelf space at Toys 'R' Us and Sears, and that void was then filled by Nintendo and Sega", whereas Commodore UK was under no pretence that the A500 was anything other than a games machine – and it was the job of then-marketing director David Pleasance to maximise that. He would do so with the introduction of Entertainment Packs and bundles.

A typical Amiga bundle, such as the Cartoon Classics set from 1991, would of course focus primarily on games – in the case of this example, two very popular titles in the shape of Lemmings and The Simpsons: Bart vs. The Space Mutants, as well as a lesser-known title with a recognisable name: Captain Planet – because even a

» Games like Turrican proved that the Amiga 500 was more than capable of delivering arcade-like experiences »

PSYGNOSIS

AMIGA DEBUT: 1986

■ This rose from the ashes of Imagine Software to form one of the Amiga's greatest software houses, with games like *Shadow Of The Beast* and *Lemmings* to its name. Later acquired by Sony, it would take that standard onto the PlayStation.

RAINBOW ARTS

AMIGA DEBUT: 1987

■ A software house that specialised in very challenging action games like *X-Out* and the *Turrican* series. Home to some of the strongest individual coding talents of the era, it would excel either on computers or consoles.

SENSIBLE SOFTWARE

AMIGA DEBUT: 1989

■ Jon Hare's studio was renowned for its popular games, often involving tiny little people running about. Strategy game *Mega-lo-Mania* was the first to explore the format, and was followed by classics like *Sensible Soccer* and *Cannon Fodder*.

TEAM17

AMIGA DEBUT: 1991

■ Like Gremlin, Team17 would shine in almost any genre it put its hands to – whether it was top-down shooters (*Alien Breed*), one-on-one fighting (*Body Blows*), cute platformers (*Superfrog*), or annelid-based carnage (*Worms*).

AMIGA 500

The inside story

Commodore engineer Dave Haynie talks Amiga 500

What was your involvement on the Amiga 500?

I was brought onto the fairly early Amiga 500 project from the 8-bit world, in 1986. I had already been learning to program the Amiga, as I bought an A1000 in 1985, not too long after they came out. We were trying to interest management in some new version of the C128, but most things were moving (towards the) Amiga at that time. So I spent most of that month learning the Amiga and A500 architecture, helping track down problems, that kind of thing.

Why do you think the machine struggled in the US compared to the Commodore 64?

Commodore marketing in the USA really had no clue how to sell the A500. It might look like an A500, but at the time the AmigaOS was more sophisticated than anything from Microsoft or Apple, so it needed a real computer store. Commodore wanted to sell in the same big department and discount stores that carried the C64, like K-Mart and Sears. Doing this, of course, made it practically impossible to any computer store that wanted to carry the A500 to do so profitably. They all bought through distributors, but big national stores were their own distributors, buying directly from Commodore. And Commodore had done much the same thing with the C64, selling it originally in discount stores while it was still in computer stores. Some computer stores found the C64 being sold at a discount store for less than they paid their distributor. Commodore screwed up their own future by thinking about short-term gain in volume.

Why do you think it had so much success in Europe?

Kind of the opposite (to the USA) – they were marketed and sold correctly. Also, a different set of competition, less Apple, more smaller computers like Sinclair, Amstrad, Acorn. And an actual marketing budget... In Europe, you knew about the A500 if you read magazines or watched TV.

What's your favourite A500 game?

Marble Madness, it blew me away when it came out, and I spent lots of time testing it in the lab on new hardware. It's totally the case that, over the years, I got busier at Commodore and didn't play games much. I love computer games, but the problem is, they got so good, you could spend days solving one game.

Arcade conversions on the Amiga 500 were [illegible] and miss [illegible] the excellent conversion of Super Hang-On [illegible] one of the better examples

"Oh well. It was a fun ride while it lasted"

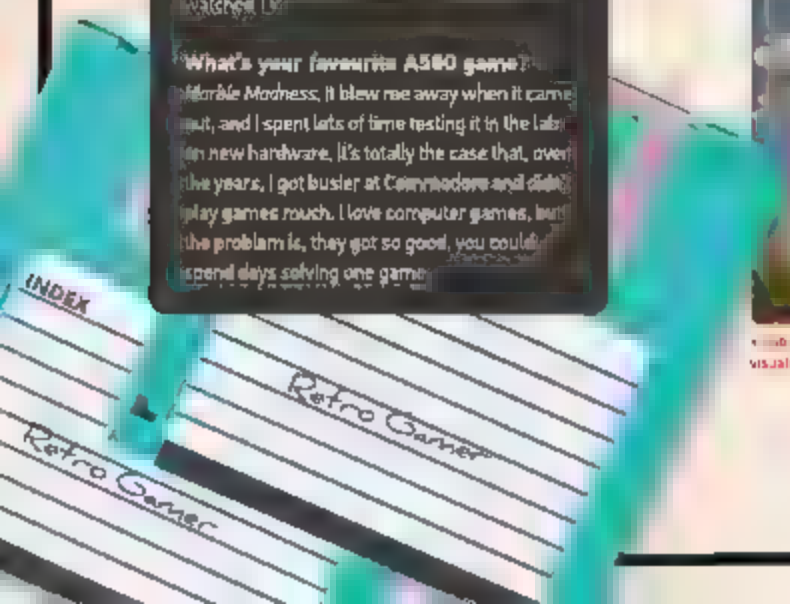
Jeff Porter

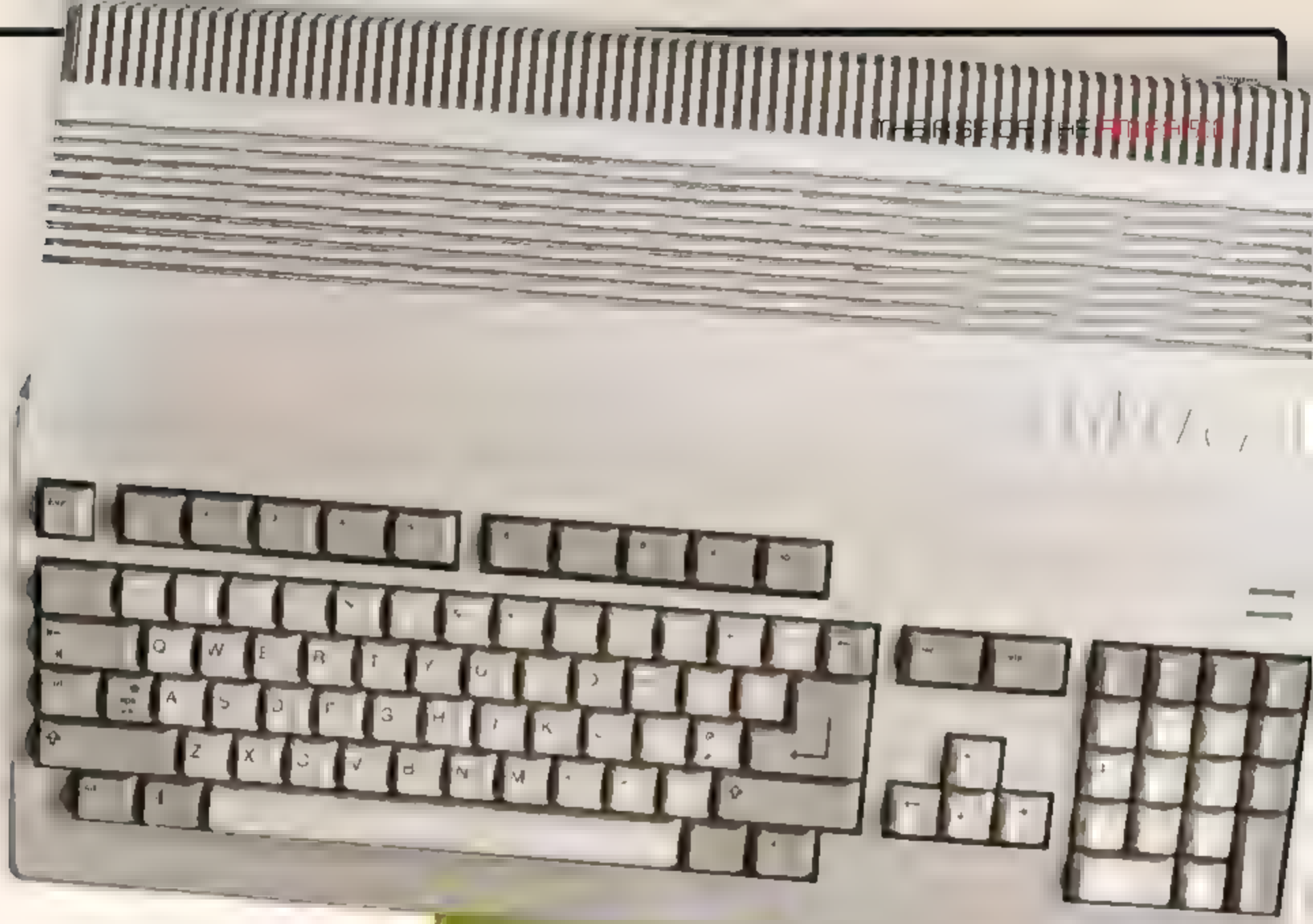
licensed game like this was not well-known or well regarded, the character, movie or TV show would be. These packages also usually contained the versions of Workbench and Deluxe Paint – which would feature on the box, albeit not as prominently as the games. All of this would be available for £359, then reduced to £299.

Many of these bundles were successful, but the one that stands above them all is the initial Batman Pack. Alongside the ubiquitous Deluxe Paint II, the Batman Pack contained three games – Batman (naturally), The New Zealand Story, and F/A-18 Interceptor, filling the roles of the very popular licensed game, the popular arcade port, and a game that your dad would probably enjoy more than you did. But, of course, Batman was the main event, and quite a coup to get in such a pack – not only had the game just been released by Ocean, but 1989 itself was the peak of Batmania – the film was the highest-grossing movie of the year, and the aisles of toy stores were filled with Batman merch. Batman toys sold in their millions, and the Batman Pack would be but one part of that, with no new computer or console around to compete with it in the Christmas period. The Batman Pack truly made the A500 a star – the success of – alone brought an estimated 2 million new people into the Amiga's user base. A year that had been the computer's last hurrah on American soil ended in Europe with its coronation as the most popular computer on the market.

The gameplay wasn't amazing, however Shadow Of the Beast's stunning visuals certainly captivated gamers

During the Nineties, the Amiga continued to hold its ground against the 16-bit consoles of the day, further augmented by new models such as the A500+ (featuring the 'Enhanced Chip Set'), the A600, and the CDTV – a consolised A500 capable of running CD ROMs. However, these products were beset by old Commodore issues, such as a lack of marketing sense and serious overspends on production – the original CDTV's CD-ROM drive, for example, cost 500 dollars. When Jeff Porter headed up production on a revised model, he found a different mechanism for the drive in Japan that cost $15 for similar performance. The A600 was an even greater horror show – one that spiralled somewhat out of control. "Mehdi (Ali, then-CEO of Commodore HQ) hired a guy named Bill Sydnes to cost reduce the A500 – good luck!" says Jeff. "He claimed he could half the cost of the A500 and Mehdi agreed. In the end, the A300 had to be renamed to the A600 since it was more expensive than the A500." A lot of this was down to events back home – as Commodore continued to lose ground, it chose to squeeze as much as it could from its existing products rather than budgeting enough money for engineering and R&D to build better models. By the time the A1200 and 4000, Amiga's 32-bit line of computers, arrived in late 1992





It was too little too late. Amiga-based games were now being matched by games from Intel 486-based PC's, and then surpassed by Pentium-based PC's. And so, games companies who had made their name on the Amiga started to look elsewhere – leaving the new machines with precious little in the way of big titles that weren't available on the PC. Those in the corridors of power hardly helped matters. "Mehdi introduced the A1200 the day after Thanksgiving for only a few dollars more than the A600," Jeff says. "He had a warehouse full of A600's, and no inventory of A1200's. Commodore nearly died that Xmas. He did it again the next Christmas and that was all she wrote."

For those in Europe, where the Amiga had enjoyed success, it was frustrating – despite its best efforts, the team couldn't stop Commodore as a whole from going down on 29 April 1994. "In spite of the fact that should have had some major clout from the A500, they didn't listen to me," Jeff laments. "Oh well, it was a fun ride while it lasted." It's fair to say that the majority of Commodore's engineers who lost their jobs that day shared those feelings. Commodore UK, successful enough to not be liquidated, pooled its resources together and tried to take over the company as a whole. It was seen as the frontrunner, and at several points it seemed like Commodore UK's takeover (which would involve a name change to Amiga) was a done deal – but a long and drawn-out process ended with computer manufacturers Escom buying the Amiga in 1995, and Commodore UK's closure shortly thereafter.

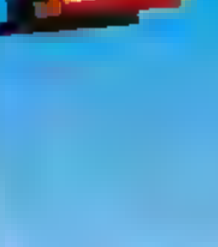
Although it originated in a country where it would only ever be a bit-part player, the Amiga 500 was successful enough that in many ways you could consider the UK and Germany Amiga's second home, particularly when you consider not only the sales of the machine, but the sheer amount of games and software that was created by European developers for the machine. The Amiga leaves behind no end of fine memories, and those who were closest to it leave a great legacy. Chris Huelsbeck sums up best by saying, "Amiga was a leap forward when it was introduced. I am looking back fondly and a bit sad how it ended, but I'll never forget the good old days, the makers, the creators and all the fans that made it happen." ★

Sensible Soccer was a huge success for Sensible Software. A hit sequel soon followed.

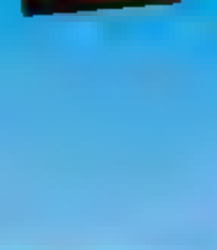
We'd like to thank all of our interviewees for their help. Jeff's writings can be found at porterdigitalsignage.com/Blog.html. Chris can be found at huelsbeck.com. The author would also like to thank Adam Spring (Remotely Interested Podcast) and Zachary Weddington (Viva Amiga) for their input.

ROAD RASH

ROAD RASH RENEGADES



RANDY BREEN
PRODUCER *(ROAD RASH 1, 2 & 3)*



ROB [redacted]
SOUND AND MUSIC *(ROAD RASH 1 & 2)*

DAN GEISLER
PROGRAMMER *(ROAD RASH 1, 2 & 3)*

MICHAEL HULME
ARTIST *(ROAD RASH 3)*

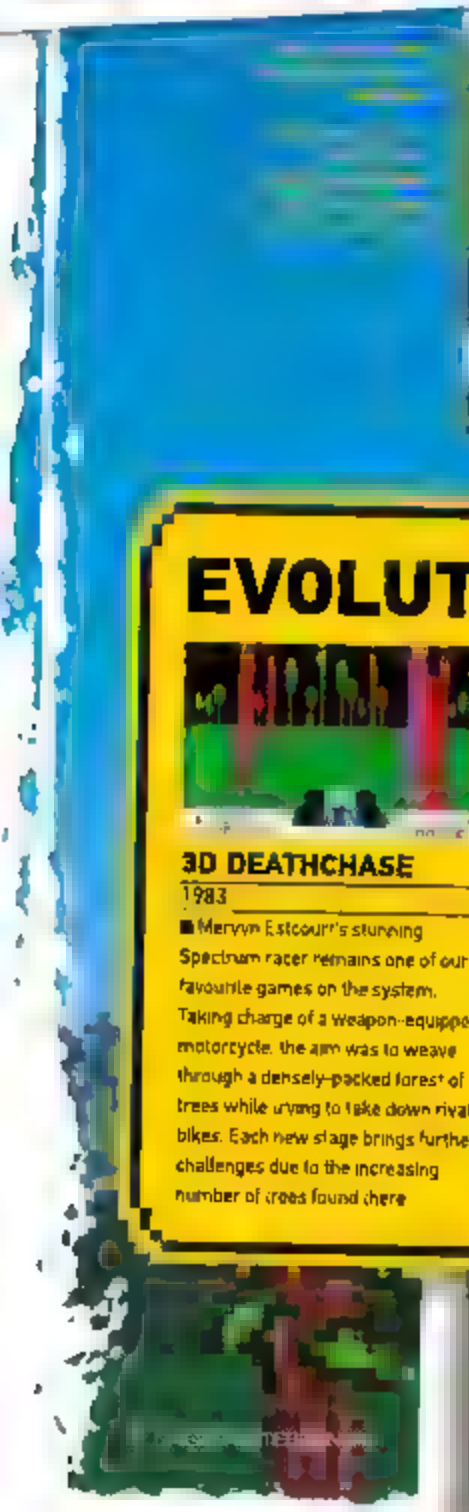
DON VECA
SOUND AND MUSIC *(ROAD RASH 2 & 3)*

RASH

For many of today's gamers, the Electronic Arts logo brings to mind the war-torn maps of *Battlefield 1* or the marauding mechs of *Titanfall 2*. But long before publishing triple-A juggernauts like *Mass Effect* and *Dead Space*, a much younger – and perhaps more cautious – EA was going through somewhat of a focus shift. This pivot would ultimately give way to a trilogy of seminal cartridges that would forever expand the possibilities of the industry's humble driving game.

"At the time, EA wasn't really in the console business," begins Randy Breen, *Road Rash*'s producer. "They had done a couple Nintendo 8-bit titles, but I think it's known that there was some internal conflict regarding their appetite about moving into the console space. At the time, the memory of the Atari crash was still very present, so most of the company's focus was on PC games."

In the years following the infamous crash, EA had begun taking tentative steps back into the home console space, mostly in categories that the company identified as, according to Randy, "strategic" and in which they would "have the market". These areas were sports, which included the recently-released *John Madden Football* on the Apple, Commodore 64 and DOS, and also racing, which lead to preliminary development on a game called *Mario Andretti Racing* on the NES. Some ways into the creation of this troubled title, lead programmer Dan Geisler was brought on board, and it soon became obvious that the game was moving in the wrong direction ▶



EVOLUTION OF MOTORCYCLE GAMES

3D DEATHCHASE

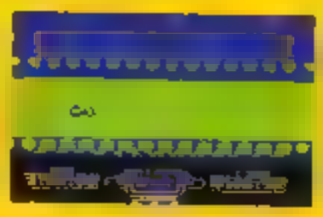
1983

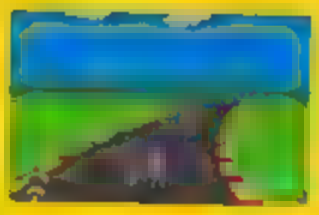
■ Mervyn Estcourt's stunning Spectrum racer remains one of our favourite games on the system. Taking charge of a weapon-equipped motorcycle, the aim was to weave through a densely-packed forest of trees while trying to take down rival bikes. Each new stage brings further challenges due to the increasing number of trees found there.

EXCITEBIKE

1984

■ Arguably the grandfather of modern motorcycle racers, this 1984 Nintendo classic packs quite the 8-bit thrill. Presented with simple controls and a practical side-view perspective, the game is easy to grasp and contains plenty of jumps to conquer and obstacles to dodge. You can experience it on the Nintendo Classic Mini: NES.





HANG-ON

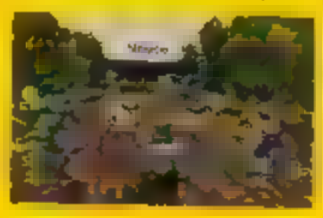
1985

■ In some ways the spiritual and completely unofficial precursor to *Road Rash*, Sega's 1985 arcade groundbreaker is easily one of the industry's quintessential motorcycle titles. Still endlessly playable, it's a masterclass in early racing game design. Just make sure to experience it as Ryo Hazuki in *Shenmue* – Yu Suzuki would have it no other way.

JET MOTO

1996

■ SingleTrac's 1996 classic evolves motorcycles into hoverbikes with an ability to traverse a whole variety of dangerous terrain, from deep ocean water and swamps to steel contraptions perched miles above dizzying cityscapes. Removing the rubber wheels allows for some pretty imaginative track design and plenty of stomach-churning death drops.



MOTOR RAID

1997

■ Sega's 1997 Model 2A answer to *Road Rash*, this futuristic motorcycle arcade game features on-bike combat and gritty courses. Despite seeming a total shoe-in for the Saturn, the game was never ported to Sega's 32-bit console and was instead relegated to arcade exclusivity. Up to four cabinets could be connected for multiplayer action.

using an algorithm to estimate the curvature of the road and that actually became the basis for Road Rash.

The game would go on to include California locations as tracks: "I used a data structure that I'd been dreaming about in the shower and perfected it," Dan recalls. "With the Mega Drive's memory, I could have done 802 miles of unique roads... I could have mapped out all of the California coast pretty accurately."

Also brought onto the team after the project was well underway was Arthur Koch, who filled the unofficial role of lead artist. "I ended up becoming involved in almost every aspect of the game," he says. "One of the problems was that everything had to fit into a 64-c[illegible] palette, and that was hard for a lot of artists to grasp [illegible] all the art to conform to the techni[illegible] requirements and training people on the in-house tools."

According to Randy, a large portion of early development was devoted almost entirely to achieving a solid driving visual. "It took me about six months to really get a [illegible] road effect," Dan adds. "And when I finally go[illegible] effect down, people saw it and got it, so I thought, 'Ah! That's it. It works.' It's tuned down in the final game, but [illegible] pretty amazing hills in that first iteration [illegible] initially floaty bike physics, which ended up being a point of [illegible] with management. Yet Dan convinced the suits to give him more artistic licence. "It was kind of tense," Arthur adds. "[illegible] member some closed-door meetings happening (with management). I didn't get [illegible] what they were saying, but they we[illegible] [illegible]ing pretty loudly, and they weren't agreeing."

Road Rash refused to be a run-of-the-mill motorcycle [illegible] Cops, who would chase players down and arrest them if they crashed, were added for extra racing tension. "I went down to the police department and talked this motorcycle cop into posing for photographs," Arthur says, recalling a time before Google Image [illegible] kind of find it strange that they even let me do that. I doubt today if I could [illegible] a cop into taking a half hour and posing for s[illegible] photographs."

Road Rash's boundary-pushing was further solidified by giving players the ability to attack other riders. The [illegible] was part of Randy's original pitc[illegible] effectively leave the game without a neat, designated place on store shelves. And as Dan points out, this hurdle created a conundrum for EA's marketing team.

"So I'm doing all the road effects, and meanwhile Randy is fighting the battles w[illegible] management. EA is very marketing and sales driven, and they get uncomfortable if they can't put something in a [illegible] game? Well, it was a fighting and a driving game, but before this, there were never any games in the [illegible]

[illegible] first game was confusing for everyb[illegible] Arthur adds. "Marketing didn't really know h[illegible] place it, because it was approached as a moto[illegible] simulation, and then we added combat, but the producers were sim guys. Dan and I came [illegible] arcade/action background, so there was quite a struggle between the development team, the producers, and then marketing and the executives of how to place the game and how to describe what the game wa[illegible]

To Dan, the game was special. "Hang-On be[illegible] was a game I liked, but I thought it was limited – no hills, no punching, no kicking. I respect Yu Suzuki, but had it in my mind that this was going to make Hang-On obsolete. And I [illegible] we kind of accomplished that [illegible] Road Rash being only several months into development, EA wanted to promote the game at the upcoming CES as a show of support for the Mega Drive, a prospect the team wasn't exactly thrilled about. As expected, it didn't show well and had to be repitched at least twice to avoid cancellation. After an extended [illegible] and a half in development, Road Rash released in the fall of 1991, and lo and behold, the genre-less moto wonder proved to be EA's most profitable title to date.

Before Christmas of 1991 was over, the pu[illegible] had fully committed to a sequel, and now that the new genre had been established, there was much less internal conflict regarding its place in the market. "Marketing didn't know what the f**k the first Road Rash was, but they loved the sequel," Dan [illegible] "Once they knew that new genr[illegible] they were all over it."

The timeframe to finish a Road Rash follow-up was indeed tight, but at least the team would be starting with a core game. "We had already gotten an[illegible]

> **"I used a data structure that I'd been dreaming about in the shower..."**
> Dan Geisler

MOTO RACER
1997

■ Developed by Delphine Software and published by none other than Electronic Arts, this arcade title offers asphalt thrillseekers both traditional street and offroad tracks. The presentation is clean, the graphics are bright and simple, and the racing is downright fast. Utilising either LAN or split screen, it's especially fun in multiplayer.

EXTREME-G
1997

■ An N64 futuristic racer from 1997 that answers the question: What would motorcycles be like in a dystopian, distant tomorrow? Part *Episode I: Racer* and part *F-Zero*, Acclaim's Probe-developed speed-fest challenges the general notions of gravity, allowing players to race upside down as they battle it out for first place.

MOTOCROSS MANIA
2005

■ Opting for an entirely off-road approach, Take 2 Interactive and Delbus Studio's two-wheel release sports some relatively drab graphics. Fortunately, the game makes up for the plain visuals with some fun, floaty physics and tracks that offer players decent freedom between jumps. The third game is the series adds bike-to-bike combat, *Road Rash*-style.

TRIALS FUSION
2014

■ This addictive title takes side-scrolling daredevil antics to an insane new level. Motorcyclists must navigate an increasingly difficult set of obstacle courses while completing challenges and setting new world records. But fair warning, the game does get infuriatingly difficult, so having a few spare controllers handy might not be a bad idea.

RIDE
2015

■ Milestone's exercise in the motorcycle arts is perhaps the pinnacle of two-wheeled driving simulations. It rides the arcade/simulation line, a la *Gran Turismo* or *Forza*, and thus doesn't alienate newbies. It also has all the graphical prowess we've come to expect from today's software, as well as plenty of real bikes to choose from.

ROAD RASH

WEAPONS OF CHOICE

Well, you're hardly going to win by playing nice...

CLUB

■ Classic, blunt and effective, nothing beats the Neanderthal simplicity of the common cosh. Easily stolen from other riders and co-opted for good ol' fashioned bludgeoning.

CATTLE PROD

■ Sometimes blunt force just won't suffice, and the stakes call for something with a tad more voltage. Charge it up, reach out and give an unsuspecting biker a suitably shocking, 'How do you do?'

CHAIN

■ Nothing says road rage better than a healthy length of rusty metal linkage. The user directions are simple: one hand stays on the throttle while the other swings a lasso of tetanus, terror and pain

MACE

■ If there's anything that puts a damper on dangerous bike competition, it's a can of mace. Useful for keeping the freeway mosquito-free and melting the faces off riders who venture too close.

NUNCHAKU

■ Contrary to popular belief, gaming ninjas don't have a monopoly on this versatile martial arts weapon. An unorthodox tool that mixes surprisingly well with illegal motorcycle racing.

OIL CAN

■ Taking note from *Mario Kart*'s trolling banana peel, these buckets of black sludge can be dumped across the roadway to wreak havoc on the competition's traction.

CROWBAR

■ Sure, one could use this metal tool as intended and pry open a stubborn box or door. But why not experiment a little and pry the nearest rider clean off his bike seat? Robbers don't know what they're missing.

extension on the first one," Dan says. "EA asked for it in a year and it took a year and a half. Of course EA wanted [*Road Rash 2*] for the next Christmas, which was pretty outrageous to get it all done. On the first game, we spent a lot of time on the tech just getting the tools and doing it right and getting everything together. But with the sequel, we had all that already going from the start, so we could focus on the gameplay, the weapons, and then really enhancing the characters and upgrading the animations."

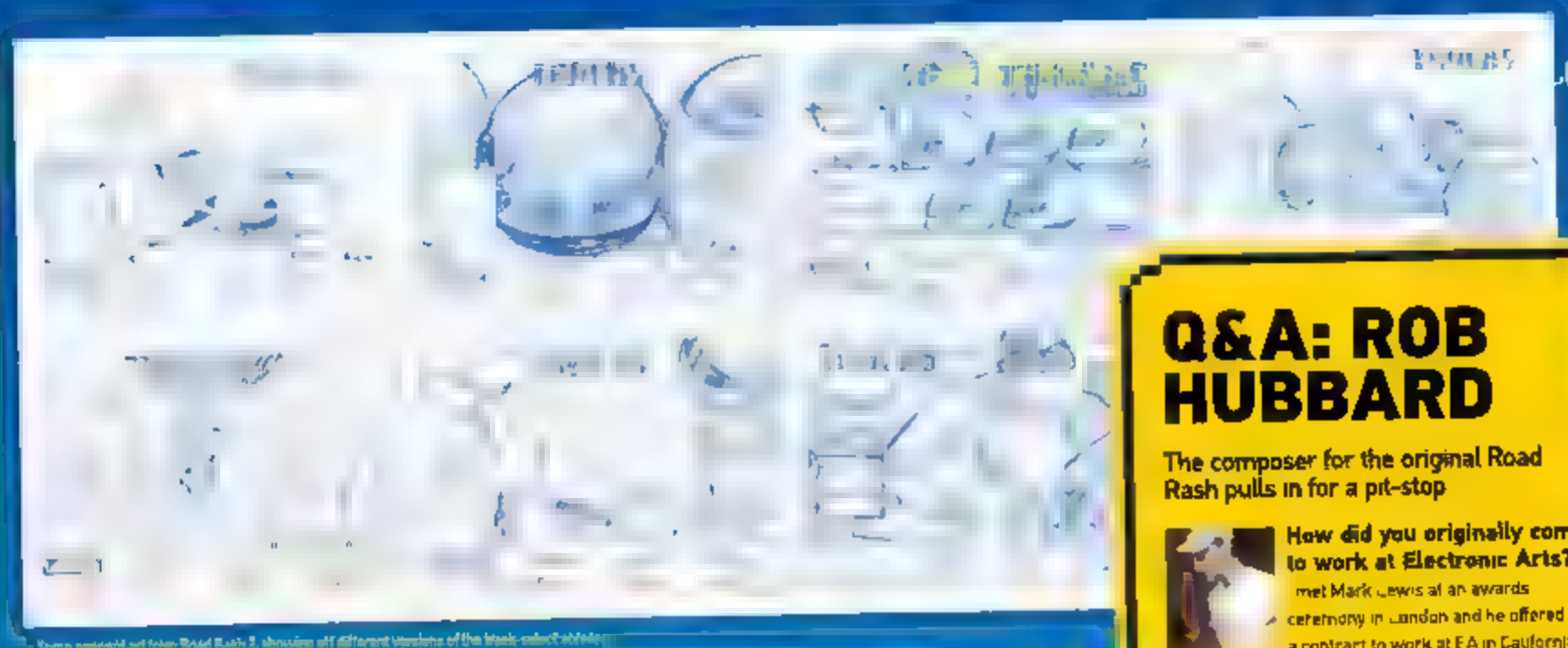
> **"Road Rash 2 was the first game in which you could beat, and get beaten, by a cop"**
> Arthur Koch

It was decided that *Road Rash 2* would leave the sun-drenched asphalt of California to explore the rest of the continental United States, with tracks set in Arizona, Vermont, Tennessee, Alaska, and Hawaii. "I was trying to maintain a certain progression through the fantasy of the product," Randy says, "which was that the first *Road Rash* was a roots-oriented thing. It happened locally, and people would run these races surreptitiously and do them in back roads where nobody knew about them – kind of a Fight Club thing. And then it gradually expanded outward."

"They're all based on the actual locations," Arthur adds about the tracks. "Some of the artists basically

dimension," Dan explains. "And that was a bitch. I think I spent about three months just doing that." And as Arthur adds, they were pushing the Mega Drive substantially. "It put more limitations on us because we were showing twice as much stuff on the screen, and it slowed the frame-rate down which took away from the gameplay. The hard part about the first game was going to the artists and telling them they couldn't get that much art on the screen at once. But in the second game, the split-screen made things even more limited."

Also new in *Road Rash 2* were charming cutscenes that would play at the end of races. For example, if the cops caught a player, they would shove him into the trunk of a police cruiser, or if a player didn't get a podium finish, an old woman would deliver a proper cane beating. "We initiated this idea of a cinematic sequence



Some concept art from Road Rash 3, showing off different versions of the track-select vehicle

Q&A: ROB HUBBARD

The composer for the original Road Rash pulls in for a pit-stop

How did you originally come to work at Electronic Arts?

I met Mark Lewis at an awards ceremony in London and he offered me a contract to work at EA in California for a couple of months. After that finished they offered me a full-time job.

What is your favourite music track from *Road Rash* and why?

That would be title track. It had a big digitized kick snare drum and quite a wild guitar solo which I can barely remember.

What were some of your influences in regard to composing music for games?

Brecker, Corea, Mahler, Stravinsky, Parker, Emerson, Jarre, Larry Fast. And loads of others.

How did you come to be involved with the *Road Rash* series?

Simply because I worked for EA, and it was a high priority project, with good sales potential.

What was your creative approach to soundtrack composition?

Just to try to create an action motorcycle vibe, with motion as reflected with the graphics.

Regarding the Sega Mega Drive and its technical limitations, what were some of the challenges you faced while composing music for the 16-bit system?

At the time, the Sega (Mega Drive) did not seem to have technical limitations. After all, the main state of the art prior to the Sega (Mega Drive) was the NES or the IBM/Tandy computers. Having an FM chip and a dedicated Z80 with sample playback was, at the time, pretty cool. Since I was familiar with FM through the DX7 I had a pretty good idea of what it could do.

Is there anything you wish you could have done differently/anything you're particularly fond of?

Not really. For the time, the game was pretty state of the art.

How do you look back at your time working on the first two *Road Rash* games?

I always enjoyed working with Randy Breen, the producer. It's always much better if you get on and have respect for the producer and the whole team. Of course, the teams back then were much smaller and closer, so it was easier to get that sense of empathy and camaraderie.

ROAD RASH

BURNING ACROSS AMERICA

Prepare for the road trip of a life time... just bring your favourite lead pipe and a few bandages

ALASKA
ROAD RASH 2

■ Easily the most difficult track in *Road Rash 2*, this frigid environment showcases powder-capped mountain peaks and snowmen. Lucky riders may even catch glimpses of a meandering moose.

REDWOOD FOREST
ROAD RASH

■ Try not to be too impressed by the coniferous giants lining this scenic roadway, which can grow up to 350 feet in height. The turns are especially sharp here, so one false move can quickly spell disaster.

GRASS VALLEY
ROAD RASH

■ A city that dates back to the California Gold Rush, this hotspot makes for excellent racing fodder. Make sure to wave at the farmers and their livestock while burning copious amounts of rubber.

VERMONT
ROAD RASH 2

■ This cozy expanse of New England roadway is awash in reds, golds and greens – the quaint backdrop for aggressive motorbiking. Just don't let the stunning colours distract you from the occasional bump.

SIERRA NEVADA
ROAD RASH

■ One famous mountain range makes for one infamously difficult track. Brimming with brisk air, pine trees and traffic, Rashers need to be extremely vigilant regarding sudden turns and killer corners.

TENNESSE
ROAD RASH 2

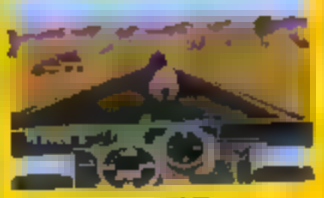
■ These roads are rendered slippery by the misty mountain air, and a pesky wind doesn't make things any easier. Keep an eye out for motor homes and a fitting church in this Bible Belt dash.

PACIFIC COAST HIGHWAY
ROAD RASH

■ Taking place on the Pacific Coast Highway, this race is relatively straight-ahead with some intersections, sand clusters and decent hills to navigate.

HAWAII
ROAD RASH 2

■ Great for achieving high speeds, this dash across the USA's own Pacific volcanic island is populated with palm trees and huts, as well as an ominous – and dormant – cinder cone in the lush, tropical distance.



PALM DESERT
ROAD RASH

■ As if burning rubber wasn't enough, this location adds blistering temperature to the mix. Sun-baked skulls dot the sweltering roadway, while a gnarly hump provides a bit of reprieve from the relentless heat.

ARIZONA
ROAD RASH 2

■ Appropriately arid and filled with saguaro cacti, this southwestern stretch of dry highway awards racers with the occasional adobe dwelling and breathtaking views of the native red-orange rock formations.

> **"Randy had a high-end motorcycle that we used for a lot of the shots"**
>
> Michael Hulme

would go worldwide with its locales, taking players to new tracks in Australia, Kenya, Japan, Italy, Brazil, Germany, and the United Kingdom. "I painted a bunch of concept styles from the different countries," Michael recalls. "The paintings were rough [illegible] quick, storyboard-type things, and in four days, I had ten paintings done. I tried to get a different palette for each location so they felt different. There were ten originally and then we whittled it down to seven in the end."

Also debuting in this iteration would be new weapons, like a [illegible] crowbar, and even a cattle prod, all of which players could hold onto between races, a first for the series. But perhaps most interesting of all is the fact that the game was being developed in parallel to Road Rash 3DO debut. The titles shared production assets, and as Randy puts it, Road Rash 3 was a "hybrid product."

"Road Rash 3 was occurring at an interesting [illegible] he continues. "We were starting to look at the 3DO and we were looking at other techniques for creating assets. We were also looking at the Mega-CD. It became a bridge product at some level between Road Rash on the Mega Drive and Road Rash on 3DO, which was developed with a different team. I was bringing some ideas and techniques across in both directions."

One of those shared ideas was the concept of digitized motorcycle riders, a feature that was brought [illegible] by an onslaught of new consoles and technologies. "Back in 1995, the first PlayStation was just showing up," Dan recalls, "and Panasonic came around every six months with their CDi, talking about how everything was going to be an interactive movie. So EA wanted to go with a more cinematic, realised look."

The 3DO was a next-generation piece of hardware and could handle digitised characters will relative ease, but getting those same images onto Sega's aging machine proved to be quite the challenge. "The 3[illegible] assets had to be repurposed dramatically for the Mega [illegible]," says Randy. "Effectively, what we had set up was a local stunt rider in the studio, and he was in a suit that was basically colour-coded so that we could strip it from a green screen [illegible] the artists would reassemble those images, touch them up and figure out how to make them work on the Mega Drive."

Also of note were the in-game characters that would speak to players between races, who were actually all EA employees. "Most of them were people on the team," Michael says. [illegible] characters based on the locations of the levels and had a photographer come in. It was a blast! Randy had [illegible] and motorcycle that we used for a lot of the shots."

Road Rash 3 released in 1995 and, as Randy says, sold better than both the first and second games. "EA hosted this launch event at EA studios and brought in the press and everything," Michael remembers. "I don't know how much money they spent, but they decked out this area with motorcycles. They brought in palm trees for the Brazil level, and they had me go and do a design that went on custom Road Rash 3 T[illegible]."

So with that, the original trilogy came to a [illegible] finish. Of course, the series went off to burn rubber on other platforms, but it can be argued that the original spark has never quite been recreated. "It gives me the greatest joy to see people still enjoying the games and having such fond memories," closes Dan. "Road Rash popped up on Reddit one day, and it was just great to [illegible] how many people had wonderful memories w[illegible] their brother, or their friends, or their dad who they rarely spent time with. The realisation [illegible] many lives were enriched by this [illegible] – it's a truly magical thing."

Huge thanks to Randy Breen, Dan Geisler, Arthur Koch, Michael Hulme, Rob Hubbard, and Don Veca for sharing their stories!

Here's the original Road Rash [illegible]

Q&A DON VECA

Road Rash 2 and 3's audio maestro gives us a glimpse into the studio...

What was your creative approach to composing the soundtracks for both *Road Rash 2* and *Road Rash 3*?

To be honest, I just ripped off all my favourite jazz fusion players. This was the early Nineties, and I came up on the late Seventies fusion era: high-intensity music. I thought the high-energy fusion thing would be the perfect vibe for *Road Rash*. I'm talking Jaco Pastorius, Jeff Beck, Jan Hammer, Billy Cobham, Lenny White, Chick Corea, all those guys. I took all I had learned from them, put it through my internal 'game music filter' orchestrated it using the very limited music systems we had back then.

Were there any particular challenges with composing music on the Mega Drive?

Oh, hell yeah... lots! There was only one mono sample voice available, then you had a handful of four-op FM voices. The trick was to use your only sample voice for the most important instruments, so you had to kind of 'multiplex' the voices so only one sample was playing at any one time. I used the sample voice for the drums. Kick, snare, and hi-hat could all play, but never on the same beat. Then the bass and chordal voices were held by the four-op FM voices (which were a trip in their own right and you could use a handful). My secret weapon here was that our awesome audio engineer, Jim Sproul, discovered that none of the other game systems were using the Z-80 chip on the Mega Drive, so we could use it exclusively for sound. It was extremely limited, though: you could only play a simple waveform, like a square wave, but you could have lots of them. I'd write a lead line in a MIDI track, then duplicate it, but I'd time-shift each MIDI track by a few milliseconds, and lower the MIDI volumes more and more on each delayed track. This way, I could create a really convincing lead guitar/synth sound.

How do you look back at your time working on the *Road Rash* games?

I have two games that I look back on and really love: *Road Rash 3* and *Dead Space*. The difference is that on *Road Rash* I was a young sound designer, so it was all new and cool. I loved every second of the project. It was nothing but fun, and I didn't feel any pressure, because it was just making cool stuff. *Dead Space* was a great project too, but I was an audio director with lots of responsibility, running a big team. Many late nights, and I missed my kids summer vacation. My advice to young game audio folks: Don't accept a promotion past a lead. Keep making cool shit and stay away from politics and management.

THE LEGACY OF RESIDENT

EVIL

IT MIGHT NOT HAVE BEEN PATIENT ZERO IN THE HORROR EPIDEMIC, BUT RESI SUCCESSFULLY MUTATED THE GENRE INTO THE TEMPLATE WE KNOW NOW. NICK THORPE SPEAKS TO HORROR DEVELOPERS TO ASSESS THE SCALE OF RESI'S SPREAD ACROSS THE GAMING WORLD...

MASTERS OF HORROR

The developers we spoke to...

MASACHIKA KAWATA
Producer
Capcom

CORY DAVIS
Co-creative director
Tangentlemen

THOMAS GRIP
Creative director
Frictional Games

WRIGHT BAGWELL
CEO, **Outpost Games**

SAM BARLOW
Independent videogame director

There's a famous saying which states that there are only two certainties in life, and while death and taxes are both inevitable, we're convinced that there's at least one certainty too few accounted for. You see, there's always a pedant out there ready to pop up when you least desire it, and we're about to lure them all out of hiding with the following statement: Resident Evil defined survival horror. "But **RG**," they cry, "there were horror games before Resident Evil! And really, didn't it just do a lot of what Alone In The Dark did?"

They key difference is in that little term 'survival horror' – nobody was using that before 1996, but it was the single descriptive phrase Capcom would return to. Upon loading Resident Evil, you'd be informed that, "You have once again entered the world of survival horror." Go back and take a look at the front cover of Biohazard (Resident Evil's Japanese name) for the PlayStation, and the words 'survival horror' are right there on the cover. So the term survival horror is very much a Resident Evil invention – and within just a few years, the entire genre was being called by the name Capcom had given it. So while Resident Evil didn't invent survival horror, the series most definitely defined it and inspired a whole host of imitators.

Yet survival horror doesn't necessarily define Resident Evil. The series managed to reinvent itself

Secondary protagonist Barry Burton is a beloved character, and emblematic of Resident Evil's B-movie appeal.

This ominous shot shows crows perched, waiting for you to fall at this [illegible]

so drastically with Resident Evil 4 as to be considered more of an action game, and that game's influence has been primarily felt in this genre. So when we talk about the legacy of Resident Evil here, we're talking about the first age of its design – fixed camera angles, tank controls, limited inventory and all.

As is commonly known today, Resident Evil was originally conceptualised by general producer Tokuro Fujiwara as a spiritual remake of Sweet Home, a Famicom RPG based on a Japanese horror film, to be directed by Shinji Mikami. That game had included many elements that would later make it into Resident Evil – the mansion setting, supernatural enemies, a heavy emphasis on puzzle solving and inventory management, the gradual revelation of the game's plot via diary entries and other notes, and even the opening door scene that serves to transition between rooms. Despite this, the original plans for Resident Evil didn't have a tremendous amount in common with the final game. Initially, the game could be played co-operatively, and the cast was comprised of cyborg protagonists, including the hulking Gelzer and diminutive Dewey as well as the eventual protagonists.

Realising that you wouldn't feel much of a sense of fear for cyborgs, especially given the original plan for a lone mastermind as the antagonist, writer Kenichi Iwao rewrote the game's scenario. What he came up with was the concept of a mansion in a remote forest. ▶

CORY DAVIS

Here They Lie's codirector on the impact and reach of Capcom's masterpiece

When did you first encounter the original *Resident Evil*, and what impression did it make?

Resident Evil came out when I was a sophomore in high school, and I remember it having a big impact on me. I was a huge fan of horror in general, but specifically of horror games like *Doom*, *Splatterhouse*, and *Castlevania*. *Resident Evil* felt different. Instead of a horror-themed carnival ride, the entire experience came together as a device for creating realistic tension and dread in unpredictable fight-or-flight scenarios. *Resident Evil* stuck with me when I wasn't playing it – this mechanism for creating fear ... haunting me until I had the courage to jump back in for more.

What design choices heighten the feeling of dread in *Resident Evil*?

The apparent roughness in the design choices really made *Resident Evil* feel antagonistic to me as a player, and that was very attractive to me. The game mechanics themselves remind me of the way I feel in real life when presented with a frightening scenario. Even the limitations of the camera add to the heightened tension as you are constantly trying to get a better look at the threat that is coming at you.

What stands out as the most memorable moment from the first *Resident Evil* to you?

This is probably a cop out, but those damn zombie dogs got me the first time, and still get me to this day. The shocking way that they leap into the environment, and the horrifying whimper they make when you finally kill one... it all gives me the shivers.

What elements of *Resident Evil*'s design have you incorporated into your own horror games?

The oppressive feeling I felt in *Resident Evil* is something that I have pushed in some way, in nearly every game I've worked on. The scarcity of powerful weapons and ammunition can really allow you to walk the razor's edge of power fantasy, and anxiety-driven terror. Dangling a power-fantasy carrot just out of reach, and then requiring the tactical, skilled usage of scarce weaponry, ammunition, or other resources in high-tension situations is an extremely effective combo. I've always attempted to be as successful as *Resident Evil* was at creating a peaceful, unassuming lull in the combat, horror, and overall tension – just long enough to lower your defences and open you up for another round of terror.

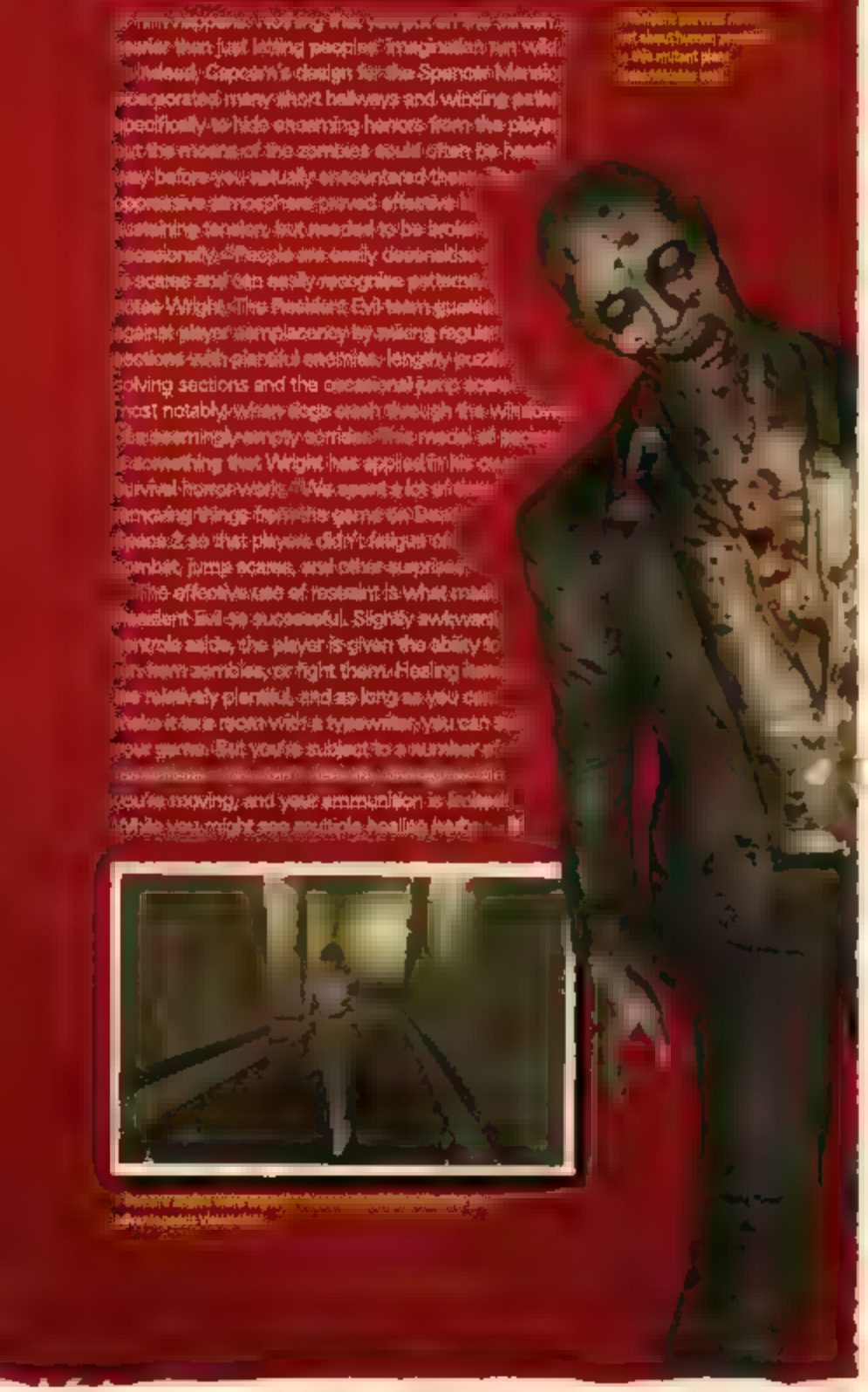
Here They Lie is a terrifying horror game that's available in VR, much like

"THE DESIGN OF RESIDENT EVIL IS A STRANGE BREW OF PANIC-INDUCING SURVIVAL MECHANICS"

which has recently been the site of mysterious murders. The local police send in their elite S.T.A.R.S (Special Tactics And Rescue Service) team to investigate, and after Bravo Team disappears without a trace, your job is to take control of an Alpha Team member (Chris Redfield or Jill Valentine) and find out what has happened. Taking refuge in the seemingly abandoned mansion, the protagonists soon discover that it was secretly a scientific facility operated by the shadowy Umbrella Corporation, and is teeming with zombies and other mutated creatures.

The team's planning process might not seem particularly cohesive, and this is something that has always been questioned by fans. "The design of Resident Evil is a strange brew of panic-inducing survival mechanics," says Cory Davis, an accomplished designer of horror games whose work includes F.E.A.R., Condemned 2: Bloodshot and VR game Here They Lie. "There's always been a lot of debate around the 'clunkiness' of the movement, camera, shooting, and UI elements in the original design, and whether or not this was intentional. At least some of it was definitely unplanned. The game was initially intended to be played from a first person perspective – a feature which had numerous benefits such as a limited field of vision and intuitive movement. However, this was quickly scrapped due to the limited 3D power of the PlayStation. Instead, Capcom's designers adopted the use of polygonal characters over prerendered backdrops, a technique seen in the earlier PC title, Alone In The Dark. This enabled the team to use high quality models for the characters and enemies, but stuck them with a fixed perspective for each scene.

Ultimately, the camera was something that the team was able to turn to its advantage. "You have this sort of tunnel vision, and are constantly unsure what things that might lurk around," explains Thomas Grip, designer of Amnesia: The Dark Descent. "This means you start to imagine what dangers might be near and eventually you end up scaring yourself basically." Wright Bagwell, a veteran of the acclaimed Dead Space series, concurs: "When things get quiet and rooms feel mysteriously empty, people freak out – they expect something to happen, and keeping them in that state of tension is where the real magic of any horror game



BY THE NUMBERS

We take a look at just how successful Resident Evil is

RESIDENT EVIL 1996
PLAYSTATION, DIRECTOR'S CUT, DIRECTOR'S CUT DUALSHOCK

SALES: 5.8 MILLION

RESIDENT EVIL 2 1998
PLAYSTATION

SALES: 5 MILLION

RESIDENT EVIL 3 NEMESIS 1999
PLAYSTATION

SALES: 3.5 MILLION

RESIDENT EVIL CODE: VERONICA 2000
PS2 DREAMCAST

SALES: 2.2 MILLION

RESIDENT EVIL REMAKE 2002
GAMECUBE, PS3, XBOX 360, DL, PS4, XBOX ONE

SALES: 2.7 MILLION

RESIDENT EVIL ZERO 2002
GAMECUBE

SALES: 2.5 MILLION

RESIDENT EVIL 4 2005
GAMECUBE, WII, PS3

SALES: 5.9 MILLION

RESIDENT EVIL 5 2009
PS3, XBOX 360/DL

SALES: 7.1 MILLION

RESIDENT EVIL 6 2012
PS3, XBOX 360/DL

SALES: 6.6 MILLION

> "SEEING IT FOR THE FIRST TIME, I THOUGHT HOW AMAZING AND POLISHED IT LOOKED"
> Masachika Kawata

...in the room, your limited inventory means that you can rarely carry more than one, forcing you to leave others behind. Even your ability to save is limited by the need for Ink Ribbons. Ultimately, you're forced to eliminate only high-priority threats. "The way the game forces you to traverse the map and learn which spaces are safe or not allows you to really build up some suspense and dread," notes Sam Barlow, whose design and writing credits include Silent Hill: Origins and Silent Hill: Shattered Memories. "You have to (frequently) backtrack through narrow corridors, where you know there's a good chance of you taking a hit from a zombie you left behind."

The use of zombies as a primary enemy proved to be a great fit for this gameplay template. They're slow enough to avoid, but resilient and dangerous in groups or tight spaces. "They're somewhat unpredictable and understandable... so it's easy to weigh the odds and feel them tip against you," notes Sam. "Zombies aren't about the primal dread of some horror, but tap into a rising panic that works well with videogame mechanics."

For Thomas, the zombies also represent a smart technological choice. "Creatures like zombies are also very good for AI," he notes. "It makes sense for them to just stand around in a location staring into a wall, if they bump into objects as they try to pathfind towards the player it is just part of who they are and so on."

This what sets Resident Evil's survival horror template apart from other horror-themed games. With more flexible controls, plentiful ammunition and an unlimited inventory, the game would be a power fantasy. However, Resident Evil forces the player to cope with strict limitations – you don't want or even try to eliminate every threat, but instead try to make smart use of the resources you have to make it out of your predicament alive.

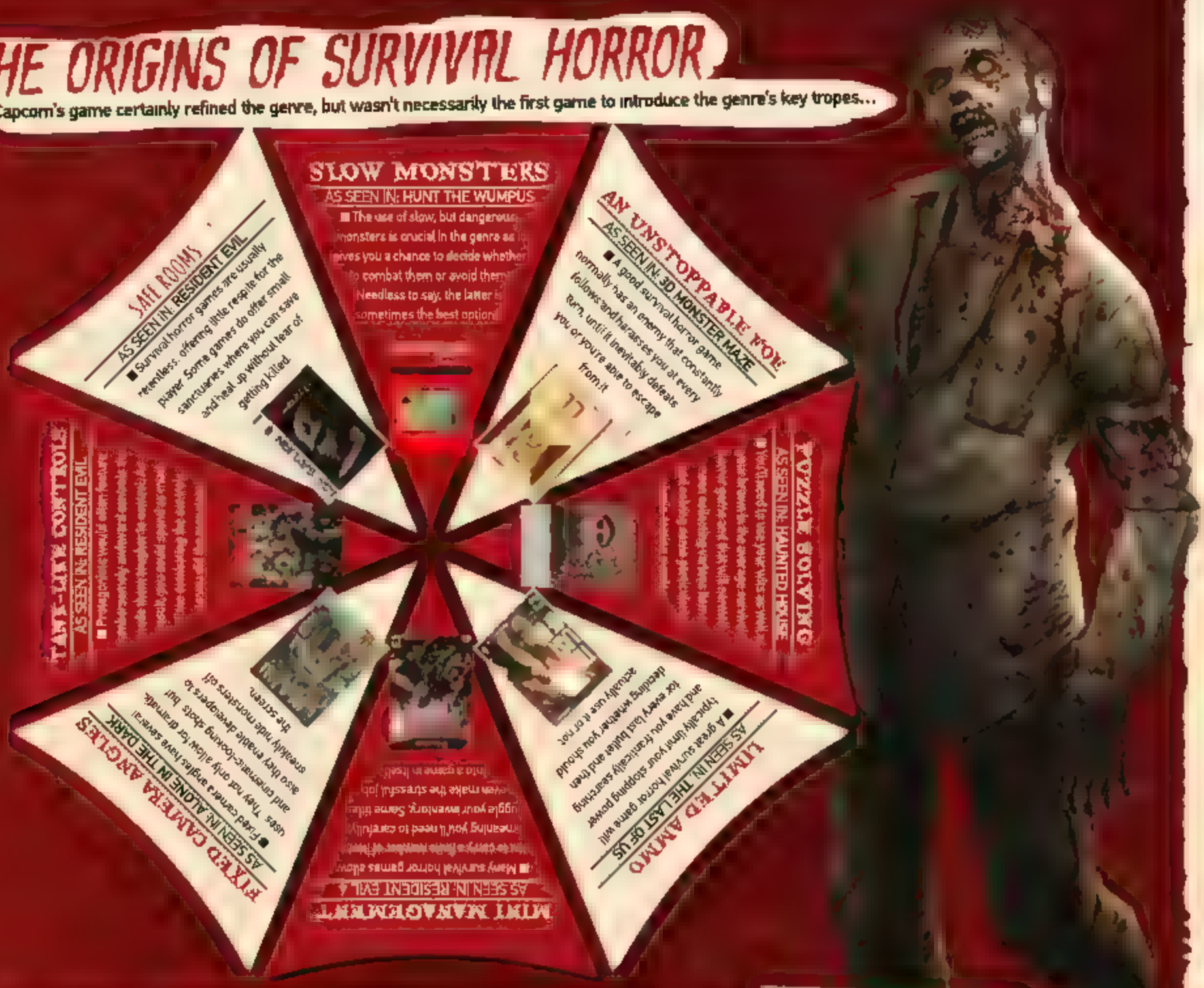
Resident Evil 3 kept the urban setting and ramped up the action, adding explosive barrels and better weapons

I wasn't working on the series when the first game came out, but I was working on something else at the time and I distinctly remember the first time I ever saw Resident Evil," remembers Masachika Kawata, now a veteran of the series who is currently producer on Resident Evil VII. "The bug check QA period for my title and Resident Evil were aligned at the same time – and back in those days we didn't have staff that did QA specifically. The dev team just had to do all the bug-checking themselves," he explains. "When I was doing the bug-check on my game I saw the guy next to me was playing what I later knew was Resident Evil. Seeing it for the first time, I just thought how amazing and polished it looked, so even though it was before the game came out, that was my very first memory of the series."

Despite impressing their colleagues, the Resident Evil team wasn't convinced that the game would do well, with the game penciled in for sales of around 200,000. If the game had any major weakness other than an unproven market for horror games, it was the

THE ORIGINS OF SURVIVAL HORROR

Capcom's game certainly refined the genre, but wasn't necessarily the first game to introduce the genre's key tropes...



game's incorporation of human actors. The opening video sequence and overall voice acting carried a heavy B-movie flavour, with some toe-curling dialogue delivered with enough ham to stock the nation's delicatessens twice over. It ultimately didn't matter – critical acclaim was widespread and the game went on to sell 2.75 million copies, making it the company's biggest hit since Street Fighter II. The game would achieve further success on the PC and Saturn, before being updated on PlayStation in a Director's Cut release and a further DualShock-enabled release that achieved over 2.2 million sales combined.

"So there weren't really many horror games back then, so this was maybe the very first game that you could say was truly scary," says Kawata, explaining

the success of the game. "But it also combined these horror features with good, deep, entertaining gameplay and on top of that the game used the then cutting-edge capabilities of the PlayStation to the fullest. So it wasn't a title that had one gimmick and the other features were falling by the wayside – it really hit all those marks so successfully with horror, gameplay and technological prowess. That was such a great combination which made a perfect storm for capturing the minds of gamers back in 1996."

Resident Evil's sales were great enough that Capcom immediately moved into full production on a series, adding new variations on the original theme. Resident Evil 2 attempted to inject a further sense of vulnerability into proceedings, giving you as

■ The movie series, while based on the games, has carved a narrative for itself, setting itself apart from its source material.

HOUSE OF HORRORS

As one of the most iconic locations in videogames, the Spencer Mansion holds some truly memorable moments...

MEDICAL ROOM

■ This room is a safe one. In fact, it's so safe that this is where you'll meet Bravo Team survivor Rebecca Chambers, if you're playing as Chris. She's a key ally in your fight against the biological horrors you face in the mansion.

CEILING ROOM

■ You can grab a shotgun in the room next door to this one. However, you can't just pluck it off the wall – unless you replace it with a broken shotgun, this room's ceiling trap will activate. Don't become a Jill Sandwich.

L SHAPED HALLWAY

■ There doesn't seem to be too much going on in this quiet corridor. But as you walk down it, ferocious hell hounds come crashing through the windows, eager for a bite of Redfield rump or Valentine thigh!

TEA ROOM

■ Here's where you first meet one of the mansion's inhabitants, who appears to be tending to one of your fallen comrades. Oh, never mind – he's feasting on the poor victim's innards. Get your weapon ready!

KEEPER'S BEDROOM

■ The groundskeeper used to live here, but now he's undead, and he will ambush you from the wardrobe as you read his diary! Of course, the real horror comes when you get to read his account of zombification. Itchy. Tasty.

ATTIC

■ We've seen some horrifying things in attics – water-damaged games, dead pigeons, you name it – but we've never come across a gigantic snake. This creature, known as Yawn, serves as the first boss of the game.

DINING ROOM BALCONY

■ This balcony seems safe from below. When you actually arrive there, though, you'll find zombies ready and waiting for you. If you push the statue here onto the floor below, you'll find a blue gem that's crucial to solving a tiger statue puzzle!

BALCONY

■ Here's where you'll find the corpse of Bravo Team's Forest Speyer, pecked to death by crows. His discovery is just a grisly moment in the original game, but in every version since then, he'll revive as a zombie and attempt to attack you.

Though dark, Resident Evil's remade visuals were astonishing – little polish was needed to put them on modern screens.

[illegible] Redfield) in the virus-infested Raccoon City with [illegible] obvious support. Additionally, the game took place across two different scenarios and your actions in one could affect your play with the other character – for example, if Claire grabs the submachine gun in her A scenario, Leon won't be able to take it when he visits the same room in his B scenario. Despite a troubled production in which the whole project was restarted late in development, the game shifted 4.96 million copies when released in 1998, and is arguably the most beloved of the classic games.

By this point, Resident Evil had effectively popularised survival horror games and other developers were keen to jump on the bandwagon. Indeed, the dominance of Resident Evil was hugely problematic for the development of the genre moving forward. According to Sam, Early efforts had their own style, but the market soon shifted towards outright clones – the 1998 Saturn game Deep Fear is effectively Resident Evil underwater, and Countdown Vampires is Resident Evil but with (you guessed it) vampires. Of the earlier efforts, Clock Tower retains a cult appeal due to its 16-bit heritage and point-and-click gameplay, and Squaresoft's Parasite Eve successfully blended survival horror with action-RPG mechanics.

1999 proved to be the year in which competition within the genre really heated up. While the fully-3D Dreamcast game Blue Stinger wouldn't provide much to worry Capcom, Konami's PlayStation game Silent Hill was much more successful in adopting real-time 3D graphics. The psychological horror of the game was a marked departure from the B-movie themes of other games, Resident Evil included, and the game was well-received and successful, kicking off a long-running series. Capcom was also taking a bite out of its own market with another real-time 3D survival horror, Dino Crisis. The initial game stayed close to the Resident Evil formula but provided some terrifyingly quick enemies, allowing the protagonist more mobility to compensate. The game sold over 2 million copies and spawned a series of its own, though the sequels were more regular action games.

Resident Evil: Code Veronica shifted the series to full-3D environments for the first time ever.

> "THERE WEREN'T MANY HORROR GAMES BACK THEN, SO THIS WAS MAYBE THE FIRST GAME THAT YOU COULD SAY WAS TRULY SCARY"
>
> Masachika Kawata

Capcom wasn't content to leave the market to pretenders, though, and developed the next two games in the Resident Evil series in tandem. The final entry in the original PlayStation trilogy was 1999's Resident Evil 3, featuring Jill Valentine's turn to escape from the doomed Raccoon City. This time, the twist was the addition of a smart and persistent enemy named Nemesis, which hunts you down over the course of the game. Capcom also tweaked the movement controls a little in order to better accommodate increased levels of action, adding a 180-degree turn move for quick escapes. Despite a shorter story and no option to choose between protagonists, the game was another critical and commercial success, shifting 3.5 million copies.

On the Dreamcast, Resident Evil: Code Veronica teamed up Claire Redfield, her brother Chris and prisoner Steve Burnside in an attempt to escape from the Umbrella-controlled Rockfort Island. For the first time in the series, environments were rendered in real-time, allowing for some camera movement (although this was still predetermined) and the addition of first-person firing for some weapons. Between its Dreamcast debut in 2000 and the PS2 conversion in 2001, the game sold over 2.5 million copies.

The 2002 remake of Resident Evil added new enemies, wrong-footing even [illegible] veterans.

The last two classic Resident Evil adventures were released for the GameCube, the platform Capcom had already chosen for Resident Evil 4, as part of plans to consolidate the whole series onto a single platform. The first of these was a modern remake of the original Resident Evil, created because the team believed that the game's visuals and localisation had aged poorly. The results were stunning – as well as a visual upgrade, the game kept series veterans on their toes with areas that had been cut from the original ▶

BACK TO BASICS

How Resident Evil VII is looking to the franchise's past to reshape its future

MANSION OF MADNESS

■ The vast majority of *Resident Evil VII* takes place in an old plantation mansion, which belongs to the Baker family. It's extremely similar to the original Spencer Mansion, with lots of locked rooms to access via unique keys. It effortlessly captures the same white knuckle tension that gamers experienced in 1996.

SIMPLE, BUT EFFECTIVE PUZZLES

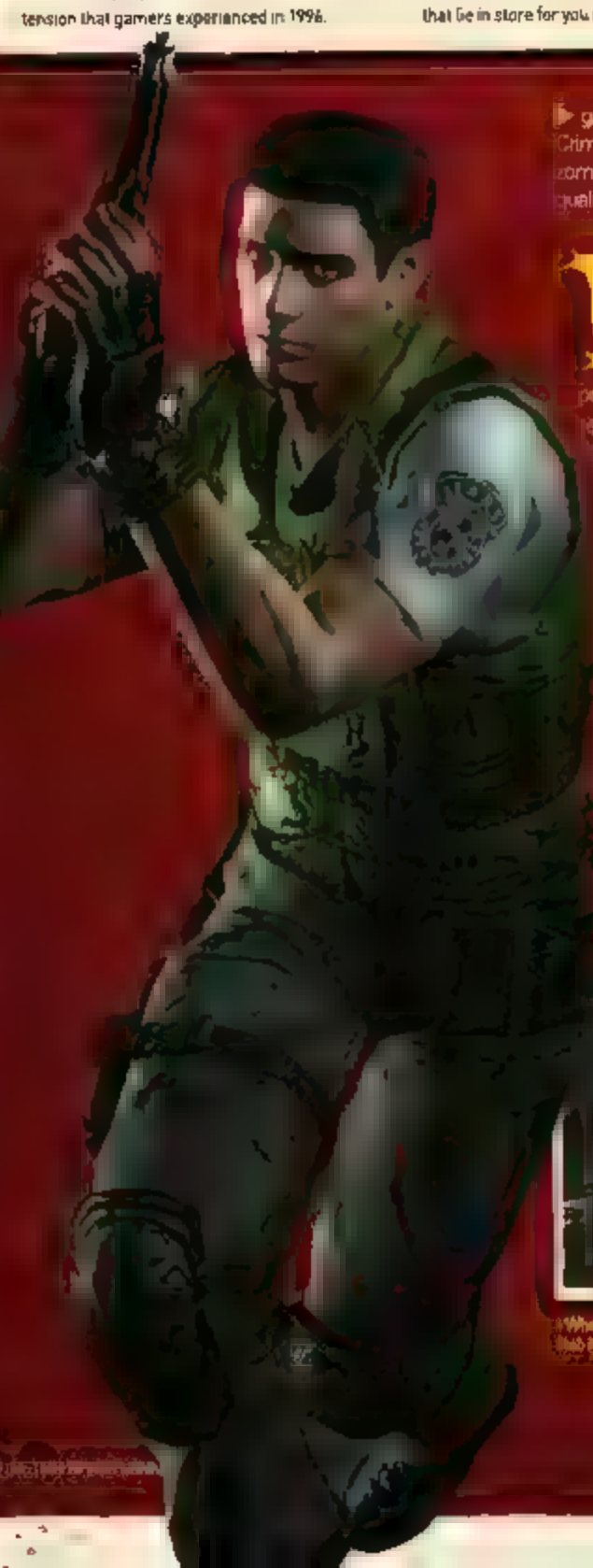
■ *Resident Evil VII* will test your brain as well as your reflexes as it features plenty of effective puzzles to solve as you make your way deeper into the mansion. A videotape being used to ingenious effect to show a hidden room in the building is just one example of the clever puzzles that be in store for you in the final game.

EXPLORING THE UNKNOWN

■ *Resident Evil* was just as much about exploring your surroundings as it was avoiding its denizens. Amazingly, Capcom has been able to maintain that balance for *Resident Evil VII* enabling you to examine various objects in your inventory and vicinity. The scripted text does a good job of describing your creepy surroundings.

AN UNSTOPPABLE FORCE

■ The Nemesis was a truly unstoppable force of nature from Capcom's third *Resident Evil* game, which would turn up at inopportune moments and wreak havoc on the poor player. Capcom mirrors this in *Resident Evil VII*, but it's now members of the Baker family who continually show up to terrorise you.



game, as well as the introduction of the dangerous Crimson Head zombies that mutated from any regular zombies killed early in the game. Despite the high quality, sales of 1.35 million was a disappointment.

Resident Evil Zero was originally announced for the N64, but moved to the Gamecube due to development issues resulting from the older console's memory limitations. This prequel followed Rebecca Chambers of the original game and escaped convict Billy Coen as they attempted to survive an outbreak of T-Virus infected leeches unleashed by the creator of the Virus, James Marcus. The game implemented a new "partner zapping" system, allowing the player to switch between the dual protagonists. Yet will, Resident Evil Zero launched in 2003 and retained the amazing visual quality of their GameCube Resident Evil remake, but also achieved a similarly-disappointing 1.25 million sales due to the Nintendo platform's weak adoption and the general feeling that Resident Evil Zero was ultimately more of the same from

By this point, even series that predated Resident Evil had adopted its conventions. 2001's Alone In The Dark: The New Nightmare and 2002's Clock Tower 3 were now closer to Capcom's series than their own origins.

"THE RESIDENT EVIL GAMES WERE ARTFULLY-CONSTRUCTED PUZZLE BOXES"

Capcom was aware that the series was in need of revitalisation, if not the entire genre. Despite the ongoing success of Resident Evil, the company spared no effort to make sure that Resident Evil 4 would achieve that, scrapping multiple attempts before hitting upon a radical revision of the formula that ditched the zombies and Raccoon City for a more action-oriented style of game set in rural Spain. The game was an enormous critical and commercial success, but one which moved far away from the original survival horror template. The game created a legacy all of its own, one which further Resident Evil sequels have followed.

But while Resident Evil left survival horror behind, appetite for the genre remained. It fell to a different generation of developers to drive the genre forward, and each has had a different approach. For Sam, Silent Hill has differentiated itself through tone. "Silent Hill games are never about the mechanics, whereas the classic Resident Evil games were artfully-constructed puzzle boxes," he notes. "Silent Hill games are messy and should lack resolution – they should plant themselves in your head and never let go. Whereas a Resident Evil game is something you can solve and win. The characters in Resident Evil are ciphers and fantasy costumes, whereas the people in Silent Hill are real and it's their stories that are the point of the whole thing."

Additionally, the team at Climax was deliberately trying to break the mould. "We tried – as best we could – to try and tear up the rule book with Shattered Memories and were, perhaps not explicitly, but at least implicitly trying to not incorporate elements from Resident Evil," Sam recalls. "It felt wrong that such a specific template had become the dominant form for horror games."

That motivation to move away from the norm also drove the Dead Space series. "Glen Schofield

FEELING LIMITED

■ The limited ammo found in the earlier games meant that every shot counted. Fleeing over fighting was always recommended in most scenarios, and ensured you had a good chance of surviving encounters. We've been terrified to discover that ammo has, once again, become a precious commodity.

THRILLS AND SPILLS

■ The original *Resident Evil* was famed for its shit your pants moments, whether it was getting scared from dogs jumping through windows or being terrorised by cantankerous crows. True to form, *Resident Evil VII* is offering similar jump scares, more so if you're brave (or silly) enough to play it in virtual reality.

JUGGLING INVENTORY

■ Jill Valentine and Chris Redfield were constantly juggling items in the first game due to their limited carrying capacities. A similar system is employed in *Resident Evil VII*, so don't assume you can simply walk around the Bakers' mansion and fill your boots with goodies. You'll just end up disappointed.

Resident Evil Zero's train makes perfect sense as an infection site – lots of people and nowhere to run

really wanted to prove that his team was capable of succeeding at doing something risky at a company that hated taking risks," Wright recalls. "The goal was to make a game that didn't have to root you in place when shooting to make combat elicit panic and fear, so I think that the game felt a bit more familiar to those who play shooters," he continues. "The team did an incredible job at that. There were sceptics that thought it couldn't be done, and it was one of those great moments when it felt so good to prove old assumptions wrong." Not only did Dead Space become one of the most highly-acclaimed horror games of the generation, it spawned successful sequels and spin-offs, making its own mark.

However, for a designer further removed from the influence of the original games, avoiding comparison with a titan of the genre is not so much of a concern. "While RE was really influential, I am not sure I see there being any issues with escaping its shadow. There are so many simple things that one can do to be different," Thomas asserts. "If you keep the things that drive the game at a holistic level, such as the mixture of action and puzzles, or how encounters are setup, I do not think that many people will feel it is too Resident Evil-like."

It's now Capcom that is looking back to the early Resident Evil era for inspiration. "It's hard to work on a series in Japan because there's so much expectation that builds up over time, but you also have these big turning points where you realise that you have to make a change in order to make the series continue," notes Kawata, who believes that Resident Evil VII will be one of those major turning points. "The big change from recent entries is definitely that we're taking it away from the action that was becoming prominent with the later games and re-establishing a focus on fear as a key concept of the game." Indeed, like some kind of biological mutation, Resident Evil is now feeding off the imitators it spawned – the first-person perspective that has become common in other horror games is now a key part of Resident Evil VII, as is VR technology.

Ultimately, the horror of Resident Evil and its successors comes down to you – it's your reaction that matters. "Horror works best when you can empathise with the characters. The key is that you have to relate to them, and they have to be experiencing resource constraints that make them feel out of control," says Wright. This is something that Kawata also believes and has tried to convey in the latest Resident Evil. "Something that can obstruct the player's ability to feel clear for the characters [is] if they feel they can handle the situation, but now you are a ordinary person in an extraordinary situation and it's not a given that they're going to be able to get through this in one piece."

So remember: when you're in an eerie corridor where you're sure that something is lurking in the shadows, you're in desperate need of healing and you're stuck with only a practically useless knife to fight off enemies, it doesn't matter how you're viewing the action or whether you're fighting aliens, dinosaurs or even zombies. What matters is that you're scared – and Resident Evil provided decades of inspiration for just these sorts of scares.

STAR
ROGUE SQ

Everyone wants to be a pilot after watching Star Wars, and Factor 5 and LucasArts delivered the next best thing with their series tie-ins. Nick Thorpe is your copilot on this mission to find out how they were made.

With all the excitement over the revitalisation of *Star Wars* under Disney's ownership, it's easy to forget that the latter half of the Nineties was a magical time to be a *Star Wars* fan. The original trilogy was remastered to unanimous acclaim and absolutely no controversy whatsoever, and production was underway on the first film in the beloved prequel trilogy, Star Wars Episode I: The Phantom Menace – a film which would finally satisfy fans' desires for intergalactic trade negotiations and buffoonish CGI mascots. [You're really selling your argument here, Nick – Ed.]

Fine, you got us – the late Nineties gave us some of the most extraordinarily divisive Star Wars media. However, while it's easy to criticise the finished products in hindsight, the simple fact that a new Star Wars film was on the way did create a buzz around the series for the first time in years. What's more, if you ignore the films and focus on videogames, Star Wars was still delivering the goods. The likes of Dark Forces and the X-wing series were hits, and even the misses had some merit. Rogue Squadron definitely became one of the hits. However, it was a non-Star Wars LucasArts game that planted the seed of what would eventually become Rogue Squadron.

"We had been fascinated by real-time landscape 3D engines since the classic Atari 8-bit computer game Rescue On Fractalus in the early Eighties," explains Julian Eggebrecht, co-founder of Factor 5. In fact, the two companies had made some headway on a sequel called Return To Fractalus for the Amiga in the late Eighties, before deciding that the hardware couldn't sufficiently advance the concept. "By 1994 it was clear that the first generation of consoles made for 3D would have the right mix of technology to attempt the game again and we signed yet another contract with LucasArts for Return to Fractalus," Julian continues. "As fate would have it, right around that time they signed a three-game exclusivity deal for Star Wars games on the shiny new Nintendo 64. We had been begging them for a while to give us creative access to Star Wars, so then-president Jack Sorensen decided to finally give in and granted my wish to turn our Fractalus project into a Star Wars game."

More inspiration was provided by Shadows Of The Empire, a Nintendo 64 launch title which wasn't consistent enough to be a true classic, but had some very impressive high points. "The Hoth snowspeeder level on Shadows Of The Empire was recognised widely as one of the most fun, playable portions of that game. The

Although the default was a third-person view, this cockpit view put you at the heart of the action.

WARS®

QUADRON™

Missions sometimes require you to escort a friendly, often big and armed craft.

initial pitch was to take that, and expand on it," explains LucasArts alumnus Ryan Kaufman. As a basis for the game, this was an instant-differentiating factor from the existing Star Wars combat flight games. "Making an X-wing game for console was never even under consideration," Ryan confirms. "The X-wing franchise was doing quite well on PC. I think they wisely decided to make Rogue Squadron more approachable, for a console audience used to a different kind of gameplay."

different aspects of the game. Factor 5 made the engine, worked closely with Nintendo to maximise usage of the N64, they wrote the music; they were the genesis of the idea," explains Ryan. "LucasArts were close partners with them, helping flesh out the actual content, and making sure it was true to the Star Wars universe." This would be the role that Ryan would play during development. "I was a level designer at that point, and I'd worked on Outlaws and Jedi Knight," he continues. "I didn't know much about flight-action games, but I knew how to make a level that felt like a story unfolding."

"My pitch was to make Rogue Squadron a greatest-of-the-movies, free-roaming action game, but Lucasfilm licensing granted only part of it," recalls Julian. "What they didn't allow was to mix original content with battles from the movies – we had to stay original in our

ROGUES GALLERY

JULIAN GOSSBRECHT

President, Rogue Squadron
Director, Rogue Leader and Rebel Strike

MIKE KEITH

Software engineer, Rogue Leader and Rebel Strike

RYAN KAUFMAN

Level designer/writer
Rogue Squadron

CHRIS CRAWFORD

Mission design director
Rogue Leader and Rebel Strike

JAMIE WHARMBY

Mission design director
Rogue Leader and Rebel Strike

story." The plan to fulfil this goal was to instead adapt other Star Wars media – specifically, the X-wing novels. "Initially, Mark Haigh-Hutchinson had culled a bunch of interesting Rogue Squadron missions from the novels. You were going to play as a member of Rogue Squadron post-Return Of The Jedi, and follow those missions," explains Ryan. "That's why the Mon Calamari mission is in there. If I remember correctly, it's a scenario that happened in one of the books or comics."

However, retelling the Extended Universe stories soon took a back seat to a more commercially appealing approach, which allowed the game to fill in the blanks between films, as Ryan recalls. "When Kevin Schmitt (lead level designer) and I came on, we pressured Mark to make Luke Skywalker the main character, and set the missions mostly between A New Hope and Empire Strikes Back. He went for it!" It was an approach that wouldn't have been feasible in years past, but by the N64-era consoles had the power to deliver immersive Star Wars experiences on par with other media – instead of being simple tie-in products, they could become part of the Star Wars story in their own right.

The only major graphical compromise in Rogue Squadron is the use of distance fog.

With the setting firmly in place, the feel of the game had to be nailed down. "Our basic design for Rogue Squadron flowed very naturally from my main inspiration for how a 3D Star Wars game should feel, and that was the 1983 vector arcade Star Wars game from Atari," explains Julian. "I wanted to merge the free-roaming, intuitive gameplay of Rescue On Fractalus with the guided, on rails, crazy visceral movie-like feeling of Atari's Star Wars." However, this proved to be a difficult task for the programming team. "Initially, making the flight control feel really good was a difficult thing to get right. There's actually a huge amount of difference between designing a snowspeeder and designing an X-wing," Ryan remembers. "That caused Mark Haigh-Hutchinson a lot of grief, getting that just right. He'd often work all day and bring us a build to test, hoping he'd finally nailed it – and we'd shake our heads, 'Sorry, buddy, not quite.' But he kept at it, kept having creative breakthroughs and eventually, made something pretty special."

"We got the okay to secretly include the Naboo Starfighter"
Julian Eggebracht

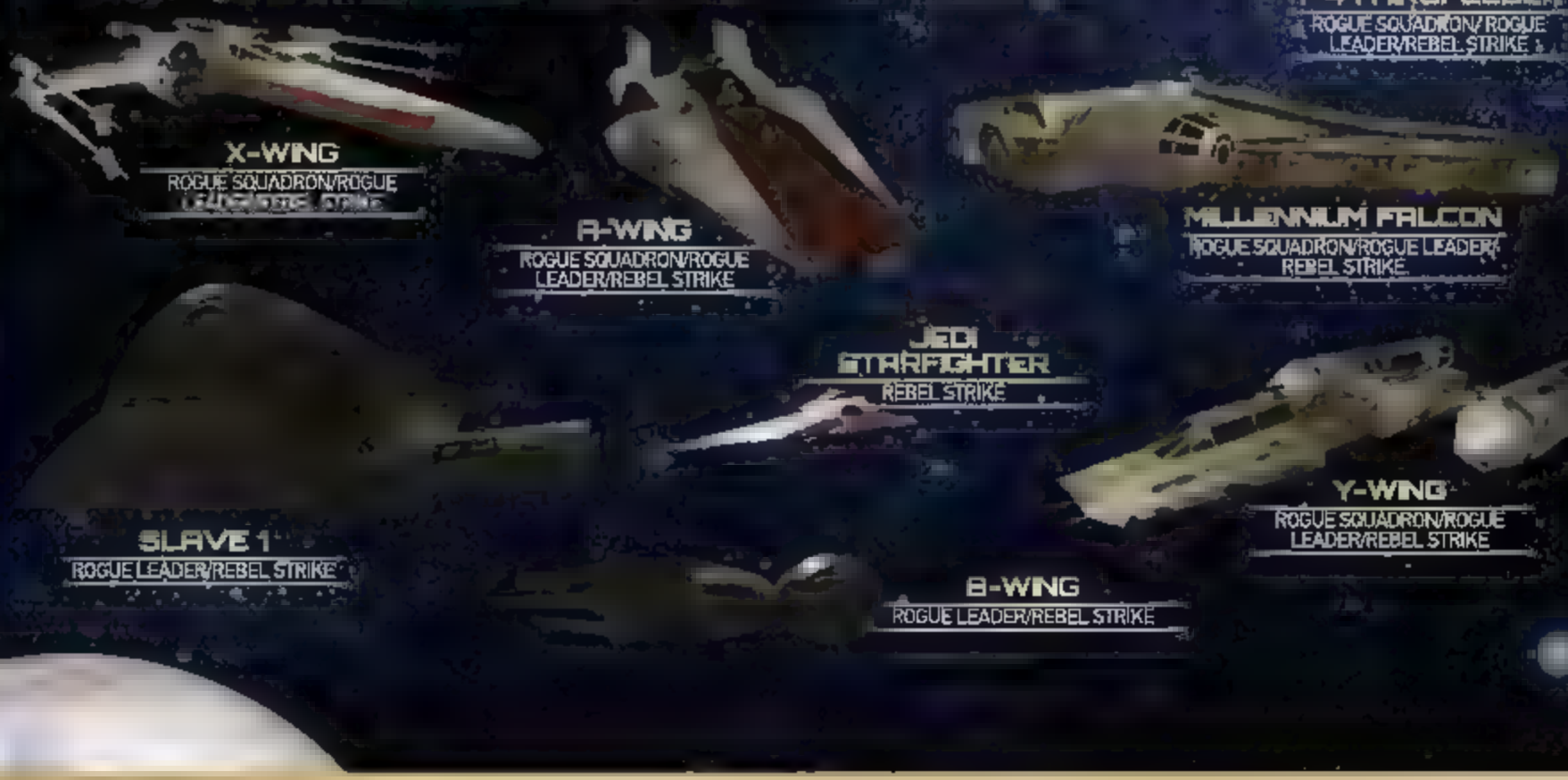
That wasn't the only challenge that the teams struggled with. While the N64 had no problem displaying 3D graphics, programming 3D movement was a different matter. "The other big problem was the enemy AI – they couldn't fly on their own. It was too processor-intensive to calculate flight paths on the fly, so we had to create splines the TIEs and other flying enemies could follow," remarks Ryan. "Believe it or not, most of the flying enemies were generated and followed strict spline paths. Only a few were free-flying enemies. And funny enough those were not very fun to fight! As level designers, used to creating scenarios where the enemies had robust AI, we had to adjust how we designed combat."

Late in development, another problem reared its head – the teams hadn't actually been developing the game for a standard N64 console. "We had made the mistake of developing the game with the memory expansion in place at all times, and not limiting access for the artists to that memory. When the time came to ship the product, we feared we might not be able to bring it back into the four megabytes that a normal N64 had," Julian admits.

Facing the possibility of having developed a game that was beyond the console's capabilities, LucasArts and Factor 5 tried two simultaneous solutions. "While also desperately working on compression techniques, we made the pitch to Nintendo to turn a problem into a win by releasing the hardware expansion. They hadn't planned for it since it always was meant to be a part of the 64DD add-on drive, but not a standalone product." Fortunately for the Rogue Squadron staff, they had help from an unexpected external source. "We were lucky that Acclaim's Turok 2 team ran into the same memory problems and also pitched Nintendo this idea for that very same Christmas period. That gave enough weight to it, and finally they relented." In the end, the team did manage to fit Rogue Squadron into a standard N64, but owners of the Expansion Pak got an improved experience in the form of a high-resolution mode.

Despite the challenges, Ryan remembers that his colleagues from the other team found time to have fun. "The Factor 5 guys were classic console game programmers and designers. To them including unlockables... that was just what you did, you owed it to your fans!" Of course, once the LucasArts team realised that the game was going to have such secrets

Here are some of the many iconic Star Wars vehicles you can pilot in the Rogue Squadron series...

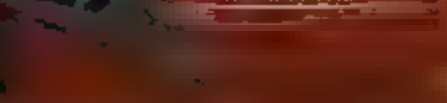


Protecting the gas platforms at Bespin requires some tricky

they couldn't help but get in on the fun. "We got into that too," Ryan confirms. "I created the Beggar's Canyon level and the bonus Hoth level, And Jeff Kung developed the Death Star level – kind of fulfilling childhood dreams!"

However, one secret stands above all the others. "To top it off, late in the production cycle we did get the okay to secretly include the Yavoo Starfighter as a deeply hidden unlockable, and managed to keep that a secret until the movie came out," Julian proudly explains.

When *Star Wars: Rogue Squadron* was released for N64 and PC in December 1998, it was a critical success. The combination of free-roaming flight and intuitive controls made the game's missions a joy to play, and with a variety of missions ranging from protecting friendly targets to search-and-destroy outings, there was plenty to do. What's more it was technically stunning – few N64 games could compare graphically. Commercial



The mission design director provides further insight into Rogue Leader and Rebel Strike

What was it like working on such high-profile games?

Rogue Leader was the first game I worked on. It was an incredibly exciting, exhausting and memorable experience. We were a small team and hungry to prove ourselves. The team really bonded under that competitive spirit to create the best GameCube launch title. The positive reaction to the 'Space World' debut certainly energised us. I'm incredibly grateful to have started my game development career on that project with that team.

What additional benefits did working on the GameCube provide?

The GameCube certainly provided increased graphical horsepower to recreate the most realistic *Star Wars* visuals to date. That realism is in no small part due to the tireless work of Factor 5's engineers and artists. They used every trick in the book to push the GameCube hardware to its limits.

We've heard *Rebel Strike*'s development was quite difficult, why was this?

Rebel Strike's development had its fair share of difficulties, but paled compared to the learning curve, high expectations and compressed schedules of *Rogue Leader*. Most of the difficulties were related to the character sections. First, the flight engine had to be expanded to support portal and sector technology for the interior environments. The aging tools struggled to support this additional tech. When the underlying character mode design wasn't panning out, the flawed tools and tech workflow made iteration difficult and slow, ultimately hampering the ability to course-correct.

Why were the third-person sections added?

We didn't want to just make '*Rogue Leader*: More Missions'. The team felt a good game sequel should be one third the same, one third improved and one third new. The new third was the character sections. Also, the previous games may have left players only connecting with the craft, not the pilot. So character sections attempted to support that fantasy fulfilment of being Luke, Han and Leia.

How do you feel they hold up today?

The character sections were the weakest part of the game when it was released. They haven't stood the test of time, especially considering the emergence

Negative criticism of Rebel Strike was regularly aimed at the

of third-person cover shooter genre conventions following *Gears Of War*. Also character models and animations tend to age worse compared to vehicles and environments.

What was the hardest thing to solve from a gameplay point of view?

We underestimated the learning curve for creating a best-in-class, third-person, character-based shooter. Much of the team possessed little genre experience and picked the wrong games to emulate. Early versions looked to *Robotron* for inspiration, which requires a locked overhead camera and hordes of enemies. The locked overhead camera didn't provide the cinematic feel of *Star Wars*. And slaughtering a hundred Stormtroopers felt totally wrong. *Devil May Cry* was another inspiration for its tight controls, intimate combat and cinematic feel. However, it was a melee game at heart.

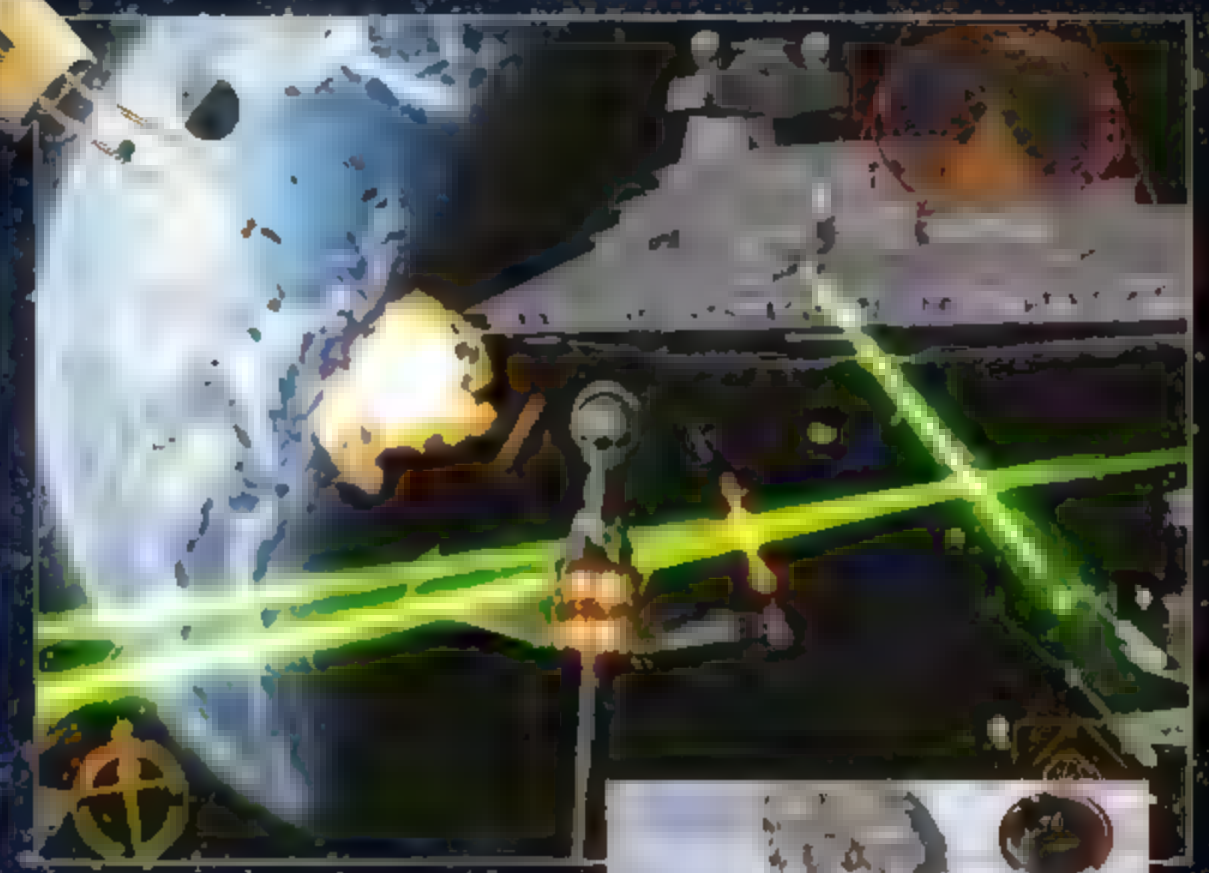
Why was the ability to play *Rogue Leader* missions in multiplayer added?

If a third of a good sequel is improvements upon the original, then I think the third improved was the *Rogue Leader* co-op campaign. These missions benefited from an additional player, design hindsight, new AI tech and improved visuals.

Why do you think the series remains so popular with gamers?

Dogfighting is a core *Star Wars* fantasy. And *Rogue Squadron* focused on accessible, arcade dogfighting with movie-quality visuals. It's easy to pick up and play, but difficult to master. *Star Wars* vehicles don't suffer from the same sort of uncanny valley that characters do, so they hold up visually today.

Here's a selection of the most memorable conflicts from across the Rogue Squadron series...
HOTH
ENDOR
MYGEETO
YAVIN 4
MUSTAFAR
BESPIN
DEATH STAR
OUTER BORDER
MID RIM
EXPANSION REGION
FELUCIA
DEATH STAR ATTACK
ROGUE LEADER
SPEEDER BIKE PURSUIT
REBEL STRIKE
DEFECTION AT CORELLIA
ROGUE SQUADRON
KASHYYK
KILE II
NABOO
KAMINO
DAGOBAH
TATOOINE
KOTHUS
VENGEANCE ON KOTHUS
ROGUE LEADER
ATTACK ON KILE II
ROGUE SQUADRON
UTAPAU
GEONOSIS

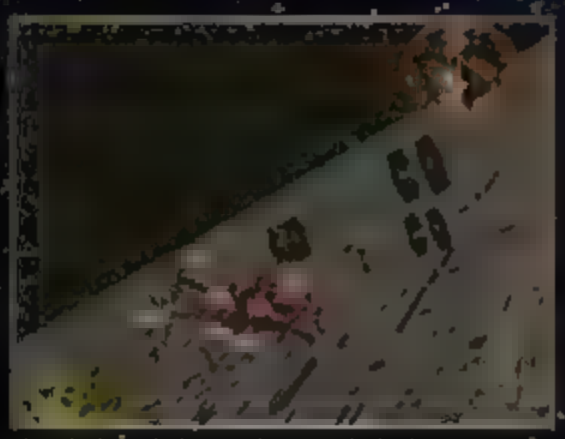


> "The game was completely built around the hardware"
>
> Julian Eggebrecht

success followed, to a degree the team hadn't expected. "We hit right in the middle of the rerelease still being in people's minds, and everyone being excited about Episode I," Julian explains. "The game ended up being the most successful Star Wars game for years."

Plans were quickly set in motion for a sequel, with LucasArts abandoning the original plan for Rogue Squadron's sequels to be based on the new prequel trilogy. "After the success of Rogue Squadron, LucasArts gave us carte blanche to try anything and everything that we wanted to do," says Julian. LucasArts weren't the only ones that had noticed the game's success, either. "Nintendo contacted us and invited us to the GameCube hardware design team after they saw and more importantly, heard what we did with Rogue Squadron on the N64," he continues. "Our technology lead, Thomas Engel, knew every bit of the chipset inside out and was able to use the visual and performance side of the next Rogue Squadron as a case study for the hardware. The game was completely built around that hardware, and some of the hardware around the game."

That might sound like a luxurious arrangement, but Rogue Squadron II: Rogue Leader was a game developed with some major constraints. The improvement wish list was long and time was short. "Frame-rate, detail, controls, music, sound effects, you name it we wanted it. And, of course, I finally wanted to realise my original plan to recreate the actual movie scenes, and nicely weave in and out of original versus movie material," explains Julian. "Rogue Leader was tailored around those wishes and the very brief development time of nine months. We cherry-picked what was possible to be done well in that timeframe." Former Factor 5 developer Chris Crawford joined during the game's development and still remembers the pressure. "It was a launch title and we didn't have much time," he confirms. "We knew it was important for the platform and critical for us as a studio to deliver something great and on time, and I think every person in the studio had self-imposed pressure to make the best Star Wars game we could."



» Rogue Leader was the first time we'd slightly agreed with claims of 'movie-quality' real-time graphics.

Despite this compressed development schedule, the combination of strong technology and people who knew it well proved potent, as Rogue Leader was a visually stunning game. "The GameCube tends to not get the respect it deserves from a technical point of view, it was a powerful machine and fantastic to develop for," says Mike Keith, formerly of Factor 5. "I remember one day crowding around in Holger [Schmidt]'s office to watch the Yavin flyby cutscene – the first sequence that we got up and running. It was amazing. The hairs on the back of my neck stood up and I actually got misty eyed."

How was this achieved? "One of the unique bits that made the game look so good is that Thomas and I had been focused on cinematic real-time shaders even in the late N64 days and we knew exactly what we needed to bring the look of Star Wars perfectly alive," Julian explains. "Other teams were years away from using normal mapping, or real-time shadows, etc., things that Rogue Leader all had. The craziest ahead-of-its-time bit is that we managed to do full global illumination on the GameCube, something that didn't appear anywhere else until a full console generation later with open-world games."

Chris was also impressed with the extra power of the GameCube. "Visually we could do some very impressive cross-faded level of detail switches for massive objects like the Star Destroyers as well as smaller objects like fighters," he explains. "Early on the team built a Star Destroyer that looked great both from a distance and up-close, running at high FPS on the prototype hardware. I was blown away by what the tech could do. We were also able to not only render more enemies at once, but the enemies were able to have more sophisticated behaviours," he continues. "The TIE Fighters in Rogue Squadron were more or less locked onto their paths. On the GameCube we were able to give enemies AI that let them chase the player and fly in different formations. The same AI was used to let players direct their wingmen to form up or attack various targets. This might have been possible in previous generations, but not on the scale or at the frame-rate that the GameCube allowed."

» Rogue Leader allowed you to take part in some of the most famous scenes from the movies.

"The additional power did create new challenges in terms of game design, particularly because of the expanded environments. "It's very easy for players to get lost, especially in space, and we worked hard on systems that assisted them to minimise that. Back then mainstream console players still struggled with 3D," explains Mike. "Finding non-frustrating ways to direct players to objectives was sometimes tricky, as well as keeping people oriented in the space levels," Chris concurs. "We always tried to provide clear visual landmarks so players wouldn't have to rely too much on the HUD. For example in Ison Corridor Ambush mission, the level took place inside a giant tunnel of nebula clouds and followed a large convoy of ships. This made it easier for players to identify 'forward' and 'back' and keep their bearings. Plus it just looked cool."

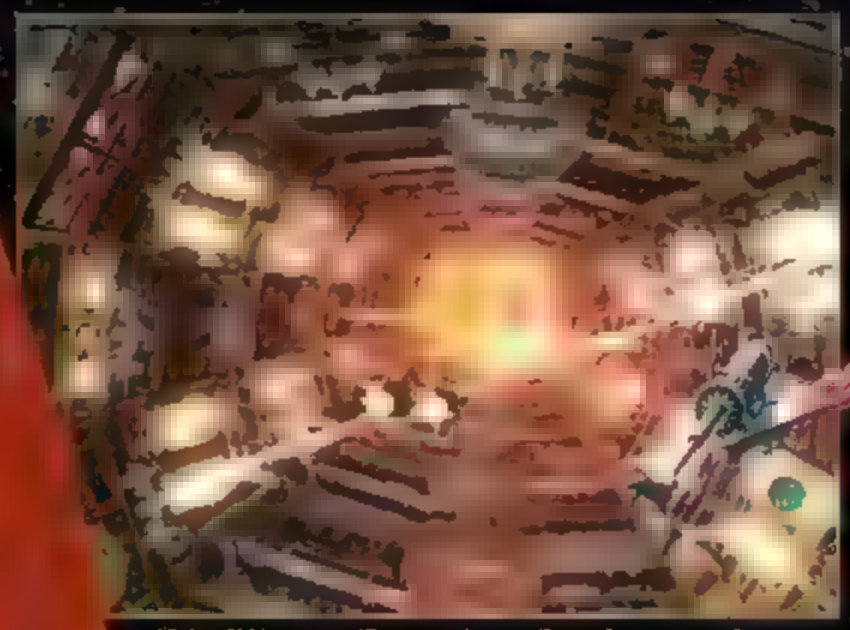
Additionally, even though CPU power allowed for enemies to have more autonomy, this still didn't make for fun gameplay, as Chris explains. "Getting the

Each of the three Rogue Squadron games was packed with loads of cool secrets, each of which could be accessed via the Passcodes section of the Options menu. Here are five of our favourites.

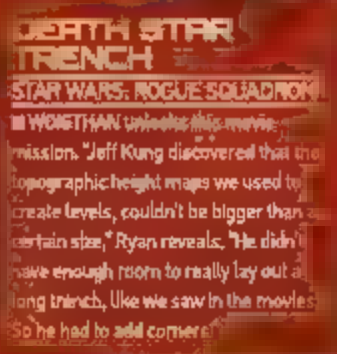
NABOO STARFIGHTER

STAR WARS: ROGUE SQUADRON

Perhaps the best-kept secret of any N64 game, as it wasn't discovered for months. To get this *Episode I* craft, enter HALIFAX? Followed by WNGWIE, then start the game on a Hoth-Snowspeeder mission. You'll find the Naboo Starfighter to the left of the X-wing on the ship selection screen.



Nintendo didn't just test your skill as a gunner, but your agility as a pilot.



DEATH STAR TRENCH

STAR WARS: ROGUE SQUADRON

WOMPHAN unlocks this movie mission. "Jeff Kung discovered that the topographic height maps we used to create levels, couldn't be bigger than a certain size," Ryan reveals. "He didn't have enough room to really lay out a long trench, like we saw in the movies. So he had to add corners."

AT-ST MISSION

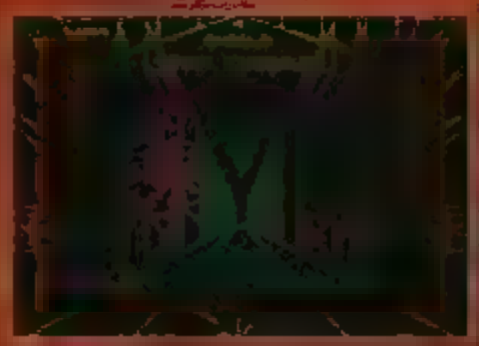
STAR WARS: ROGUE SQUADRON

"The one thing I remember wanting and bugging the F5 guys to put in, was a playable AT-ST scout walker," Ryan recalls. "They told me a million times 'No way, we can't possibly include that.' And of course, being old school coders they then *had* to put it in as a secret." CHICKEN unlocks this.

THE BUICK

ALL THREE!

For some bizarre reason, Factor 5 designer Rudolf Stember's Buick Electra 225 became a recurring secret in the *Rogue Squadron* series. KOELSCH unlocks it in *Rogue Squadron*, IZUVIEL then IBENZIN does the job in *Rogue Leader*, and AXCBPRHX followed by WHATTHEY works for *Rebel Strike*.



CLASSIC ARCADE GAMES

STAR WARS ROGUE SQUADRON REBEL STRIKE

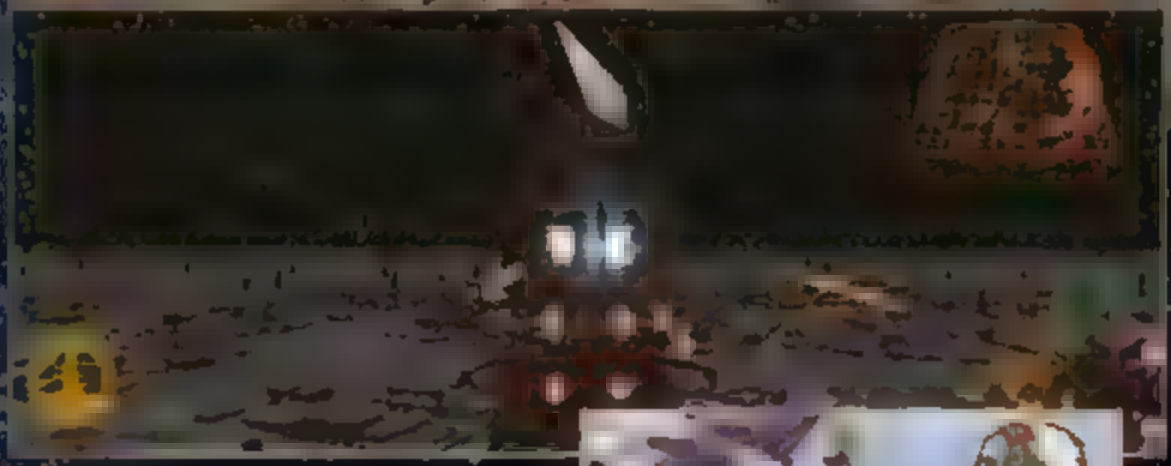
All three of Atari's arcade games are present in *Rebel Strike*, allowing you to indulge in retro vector fun. To unlock *Star Wars*, enter RTJPFOG then TIMEWARP, *Empire* unlocks with HIF?HX5 then KODLSTUF, and *Jedi* with ?ATHIRD then GAME?YES.

"dogfights to be fun and not too overwhelming was a challenge too. Although we had new AI tools to play with. A good deal of time was spent crafting paths for enemies and managing when they used the paths and when the AI was set free to attack."

Ingredibly, the teams at LucasArts were working on the similar game Star Wars: Starfighter, but weren't aware of Rogue Leader's development. When they did learn of it, the resulting friction put the entire Rogue Leader project in jeopardy, as Julian recalls. "When the legendary Miller trailer at the GameCube unveiling was played, most people at LucasArts were in shock," he explains. "They tried to have Rogue Leader killed to prevent the game from overshadowing Starfighter, and almost succeeded due to Microsoft offering LucasArts incentives to move Rogue Leader to the Xbox. It was a nasty four months of political wrangling with us at Factor 5, as Nintendo technology partner, caught in the middle."

Thankfully, the giants survived and the high-pressure development produced a diamond of a game. Thanks to its astonishing visuals, focussed game design and excellent recreation of key movie scenes, Rogue Leader is the undisputed high point of the trilogy. Upon its launch in November 2001, it received universal critical acclaim and became the best-selling third-party game of the GameCube's launch line-up. When the GameCube launched in the US the following May, Rogue Leader actually became the first ever third-party game to hit the top of the UK charts during a console launch.

The prospect of playing as Luke Skywalker on the frontlines of



• Co-op mode was definitely one of the highlights of the [illegible] Rebel Strike.

"We just wanted to capture the excitement we felt as kids"

Chris Crawford

With the same team working on the same platform, but with the benefit of additional experience, Rogue Squadron III: Rebel Strike should have been an instant classic. On paper, it has all of the ingredients to be considered the high point of the series, yet it's more often noted as the black sheep. "With Rebel Strike we bit off way too much," Mike laments. "We were looking at about 18 months development time and thinking: 'Given how little time we had for Rogue Leader, think how much new stuff we can cram in!' Burn out was also a factor. The company was going through growing pains too."

Though Rebel Strike included the same action that had been so great in the previous games, it introduced on-foot sections which allowed the player to control heroes directly. "The weak spots in the game are the on-foot missions. That clearly was a mistake, but then there is also a slight feeling of 'leftovers' in Rebel Strike since Rogue Leader really grabbed some of the key levels," says Julian. The idea of doing on-foot gameplay seems sound – what went wrong? "We hadn't done that gameplay before and we struggled," says Mike. "When you're trying something new in game development, you need to have the resolve to see it if it isn't working. We spent months trying to get those on foot sections to be fun, but couldn't do it. We should've cut our losses and killed them, but that's easy to say in hindsight."

• Stilted animations and an awkward camera blight the on-foot gameplay sections of Rebel Strike.

While the campaign was disappointing, the new cooperative mode was excellent, due to the fact that it used the missions from Rogue Leader.

But why use the old missions rather than the new ones? "When we did the Rogue Leader design document, it had the co-op multiplayer in there because to time we couldn't get it done," Julian recalls. "So partially it happened in Rebel Strike as a proof-of-concept that we could push performance so much further that we could run Rogue Leader twice, and secondly it was just a blast to work on a multiplayer version of the levels we were familiar with." This proved to be a major technical undertaking, but one which added a huge amount of value to the game. "Multiplayer brought up all manner of interesting challenges," says Mike. "Not only did we have to rewrite huge chunks of the code base to add the concept of multiple players, but a lot of the optimisations worked because they assumed there would only be one camera (viewpoint) at any given time, so we had to find new methods to get the performance we wanted."

Rogue Squadron III: Rebel Strike launched in October 2003 to a critical reception that was still broadly positive, but markedly less so than that of its predecessors. The flight combat and cooperative mode were positively received, as was the inclusion of classic Star Wars arcade games, but the on-foot missions were singled out by the majority of critics as the major negative point.

Regardless of the disappointing conclusion to the trilogy, it's fair to say that Factor 5 and LucasArts created something special with the Rogue Squadron series. Few Star Wars games have so expertly captured the feeling of making heroic strikes at the Empire, whether they're recreating the movies or adding to the legend as in Rogue Squadron. "The gameplay holds up well. And people mention [Rogue Squadron] to me a lot as one of their favorite N64 games, so I'm proud of that," says Ryan. "We just wanted to capture the excitement we felt as kids watching the space battles and playing with our Star Wars toys," Chris remarks. "[Rogue Leader] holds up well," agrees Mike. "We were a team of passionate fans, we worked hard. Our mantra throughout was that we wanted to make the player feel like they were Luke Skywalker, and I think we did a pretty good job of that."

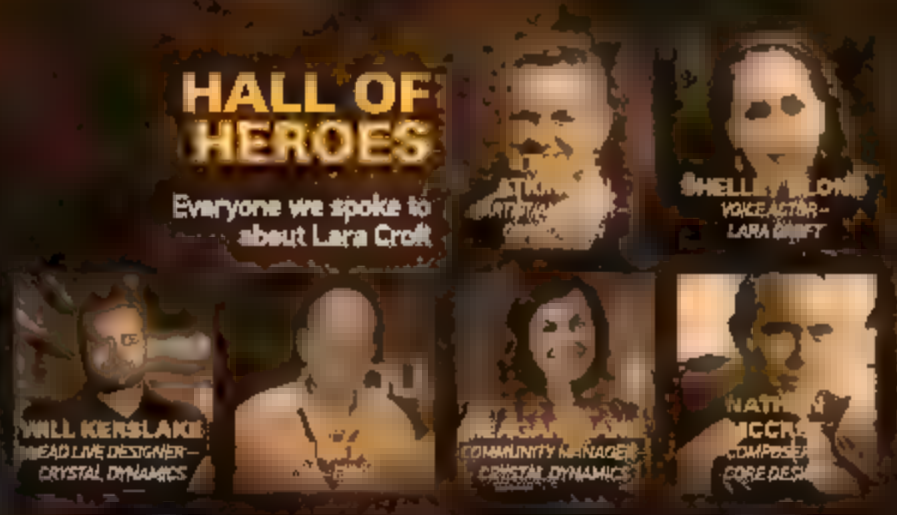
• Improved explosion effects were one of the key visual upgrades to Rebel Strike.

But for Julian, the Rogue Squadron story is one which remains unfinished. "When we designed our ideal Star Wars game, it was a blend of Rogue Leader and Rebel Strike – in fact it exists as Star Wars Trilogy: Rogue Squadron for the Wii," he explains, referring to an unreleased game that combined the existing games while fixing some features and adding new ones like lightsaber battles. "Both games merged together felt perfect, and of course that was finally realized on the Wii. The Hoth level on the Wii is probably the best Rogue Squadron level ever, since it merged all of Rebel Strike's Hoth and Rogue Leader's Hoth into one epic mission."

"It would be nice to see that game released in some form since it was the ultimate Rogue Squadron," Julian continues. "I am still holding out hope that it will happen, especially because it was also some of the best work of the team." It's a tantalising thought to leave us with, and one that leaves us with a new hope that the Rogue Squadron series might take flight again in the future. ★

TOMB RAIDER

Few characters achieve iconic status, and Lara Croft ascended to become a superstar. But it takes a lot of hard work to stay relevant over two decades, as Nick Thorpe and Darran Jones learn from the people tasked with bringing Lara to life...



THE DEFINITIVE HISTORY OF TOMB RAIDER

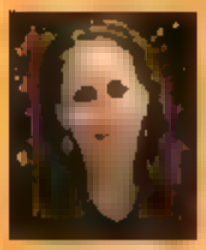
TOMB RAIDER

In the mid-Nineties, the videogames industry was short on icons, but there were plenty of characters to go around. You weren't hardly a developer if you didn't have your own 'hero' – and Core Design had just spun the kart racer BC Racers off from its Chuck Rock series. Save for the loose tie of ancient history, that game might not have much to do with Tomb Raider but for a single name: Toby Gard.

As a talented young designer, Toby Gard had moved on from BC Racers with the vision to create a project unlike anything else at the time, and something that would become truly iconic. Tomb Raider was to be a 3D action-adventure game, distinguished by its female protagonist. Initially conceived as a South American adventurer by the name of Laura Cruz, she would eventually become the British aristocrat Lara Croft, an athletic and independent adventurer with a penchant for collecting ancient artefacts. While Lara wasn't

BRINGING LARA TO LIFE

Shelley Blond on voicing Lara in the very first Tomb Raider game



How did you get the job of voicing Lara Croft?

I was asked to audition for the character after Eidos and Core had been searching for the right voice for quite a few months. I was sent a few sentences from the script, along with a very rough sketch of Lara, and recorded them into a cassette recorder and sent it to Core. A few days later I was asked to take part in a conference call with a few people from Eidos and Core, including Nathan McCree, and after performing a few more audition lines was told I had the job. It was wonderful to get the role, knowing they had looked for so long and so hard.

How much information were you given about the character before performing the dialogue?

For the audition I was simply given the rough drawing and told she was a girl with a feel for adventure and spoke quite well. I took that on board and read for the part as I felt she would sound. For the actual job, I was given more detail about her upbringing and background. I was asked to perform her voice in a very plain non-emotive manner and in a 'female Bond' type of way. I would have added more inflection, tone and emotion to my voice but they wanted to keep it how they felt it should sound, which was quite right. My job was to bring their character to life.

Why didn't you reprise the role in the sequels?

I was asked to reprise the role for the second game, as the chemistry worked, the game was so successful and reviews for the voice as well as the actual game were great. But by that time I was contracted for other companies and we couldn't make that work. I did give my permission for them to use all my sound bites from the first game for *Tomb Raider II* and *Tomb Raider III*. Like the fighting, falling and 'yes and no'. So I am still in the games. Judith Gibbons voiced the game but it's all Lara's original sound bites.

It's such an honour to be the original voice of such an iconic character. There are so many fans of the games, it has touched so many peoples' lives, had such a global impact and I am honestly thrilled to be part of it all.

» The infamous T-Rex encounter, as captured from a nice safe vantage point.

"A real buzz was building around Tomb Raider, but we were still prudent with our forecasts"

Ian Livingstone

» The first female protagonist in games, this was still a bold choice – few games included strong female leads. Dwelling on Lara Croft's qualities as a character, however, diminishes the fact that the choice to make a 3D action-adventure game was also bold. Not only was the project unlike anything else available at the time, the lead platform for the game was the Sega Saturn – a machine that would become well-known for its awkward and non-standard handling of 3D visuals.

"We were definitely trailblazing a lot of what we did on Tomb Raider," says Gavin Rummery, a programmer on the first two Tomb Raider games. "When Toby first described what he envisaged on my first day at Core, I wasn't sure it was possible because nothing like it existed." Of course, had that precedent existed, it wouldn't have been a big deal anyway!

"We didn't think about looking at repeating something that had been done before, so had never considered needing other games for reference," recalls Heather Stevens, a graphic artist and level designer on the first two games. "It was an enormous departure from what Core Design had done before, and the team struggled with it. "What appeared the greatest challenge was how on earth we would create the actual environments and get Lara to interact with them," Gavin recalls. "Heather was attempting to build them directly in 3D Studio which could only edit in wireframe mode, but neither Paul [Douglas, programmer] or I had a clue how we could get a character to interact with freeform environments given the processing constraints of the day."

"The breakthrough was the decision to build everything on a grid," continues Gavin. "To me this was the point Tomb Raider became feasible and everything seemed to fall into place. Toby was able to define Lara's moves, Paul could get the control working, and I was able to build a level editor that Neal [Boyd, artist] and Heather could use to build and test the environments far quickly than would've been possible using 3D Studio."

Getting the sound of the game right was important and this was a task which fell to Nathan McCree although given the amount of time he had to so, it might have felt rather more like it had fallen on him. "The first Tomb Raider was such a rush. I think I had about three weeks to compose the music. It was mostly a case of, write something and then figure out a way to use it later," he tells us. "What became apparent during the installation process was that the tunes worked best when placed in specific locations to describe a particular place or feeling at a specific moment in the game. And this gave birth to the idea of location-specific music."

Nathan wasn't the only one feeling the pressure, as the whole team was battling a very tight deadline. "It

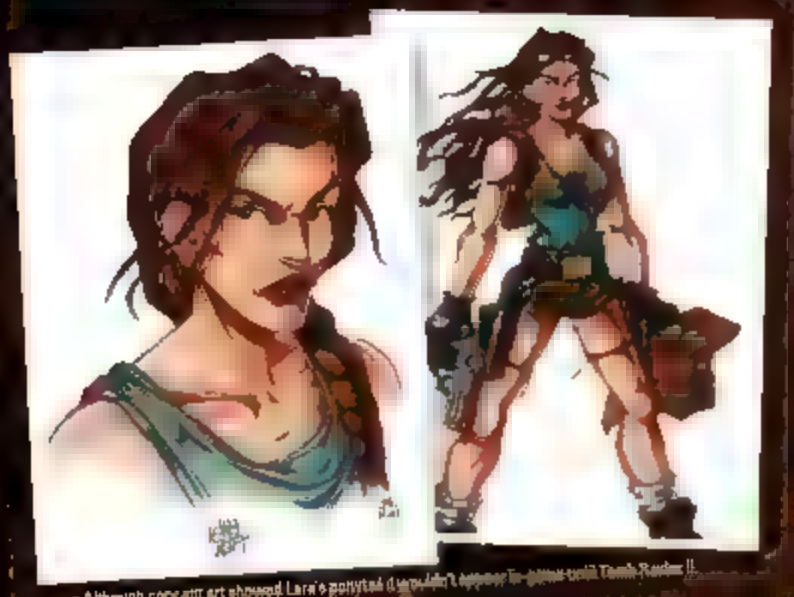
» Lara's iconography can be attributed to her appeal for both male and female demographics. She is a hero for everyone.

Concept art for the original Tomb Raider, showing Lara in

was tough developing Tomb Raider (long days etc.) but very rewarding," Heather confirms. This eventually led to extra staff being drafted in. "I was an animator and model builder working in the room next to the Tomb Raider team and also a good friend of Toby Gard," explains Stuart Atkinson, an artist who worked on the earlier Tomb Raider games. "He asked if I could help him out with enemy characters, being about four months from the deadline, the pressure was getting pretty serious and his workload was too much. So I jumped at the chance!"

Tomb Raider was released in October 1996 for the Saturn, followed by PlayStation and PC versions in November. It detailed Lara's quest to acquire the Scion Of Atlantis for the mysterious businesswoman Jacqueline Natla. The game was a critical success, and commercial success would follow. But though the team at Core Design was sitting on a hit, it didn't know it. "None of us knew it would be anything like the success it was," says Gavin. "We could tell it was getting favourably received, but it was only when we started seeing the actual sales figures that we realised just how big a success it was." Even the upper management wasn't aware that the game would be enormous. "The preview coverage had been very encouraging. A real buzz was building around Tomb Raider, but we were still prudent with our forecasts," says Ian Livingstone, then president and CEO of Tomb Raider's publisher Eidos. "I recall that we put a number in the budget of 100,000 units being sold. Little did we know that the first Tomb Raider would go on to sell over seven million units!"

While there's no doubt that the game was a team effort, one man's influence is often cited as a key factor behind the game's success. "Thanks to a very obstinate Toby Gard and his vision of a strong female heroine in a computer game, we can now appreciate the unique Lara Croft," says Heather. "Undoubtedly Lara was a huge aspect in the success of the game and the marketability of the product. She was a character



« Although concept art showed Lara's ponytail it wouldn't appear in-game until Tomb Raider II.

that won the hearts of both male and female players. However the game was so much more than the character herself," she continues. "I think the key factor was Toby Gard," Stuart concurs. "It was his vision and he made sure everyone followed it through. He was also lucky with the team he ended up with, not only were they talented, they trusted and believed in him." However, that's not the only factor he credits. "And, of course, how amazing the first game was to play back in the day, it just blew me away."

Unfortunately, Toby Gard would not stick around for the success that followed. Creative differences drove a wedge between him and the management at Core Design, and he would leave the company without getting involved in Tomb Raider II, passing up enormous royalties in doing so. Most of the team remained and moved onto the sequel, which had to be ready in less than a year. Surely such a tight deadline was a pain? "Working on the sequel was a natural progression," Heather points out. "We had invested so much time and creativity into Tomb Raider that it would have been unthinkable to just walk away from it. It was action stations again for most of the team, and time to get our heads down again."

Externally, Lara Croft was already becoming a crossover star, a fact which brought the success of the first game home to the developers. "On the lead up to the release of Tomb Raider II, we had many more press and TV interviews, so things started to hit home for me," Nathan recalls. The Face featured a cover story on the character and her popularity. Rhona Mitra was gaining recognition as the 'real life' Lara Croft, and she was already collaborating with Dave Stewart of the Eurythmics on music to be released under Lara's name. This exposure built anticipation for Tomb

AROUND THE WORLD

Then Tomb Raider games have taken place all over the world. How many of the following exotic locations do you remember?

THE DEFINITIVE HISTORY OF TOMB RAIDER

ARCTIC SEA
TOMB RAIDER: UNDERWORLD

JAN MAYEN ISLAND
TOMB RAIDER: UNDERWORLD

RUSSIA
TOMB RAIDER CHRONICLES

SIBERIA

IRELAND
TOMB RAIDER CHRONICLES

PRAGUE
TOMB RAIDER: ANGEL OF DARKNESS

KAZAKHSTAN
TOMB RAIDER: LEGEND

PARIS
TOMB RAIDER: ANGEL OF DARKNESS

VENICE
TOMB RAIDER

CHINA
TOMB RAIDER

GREECE
TOMB RAIDER

TOKYO
TOMB RAIDER: LEGEND

ROME
TOMB RAIDER CHRONICLES

SYRIA
RISE OF THE TOMB RAIDER

NEPAL
TOMB RAIDER: LEGEND

TIBET
TOMB RAIDER

YAMATAI

EGYPT
TOMB RAIDER, TOMB RAIDER: THE LAST REVELATION

MEDITERRANEAN
TOMB RAIDER: UNDERWORLD

INDIA
TOMB RAIDER

CAMBODIA
TOMB RAIDER: THE LAST REVELATION

ANDAMAN SEA
TOMB RAIDER: UNDERWORLD

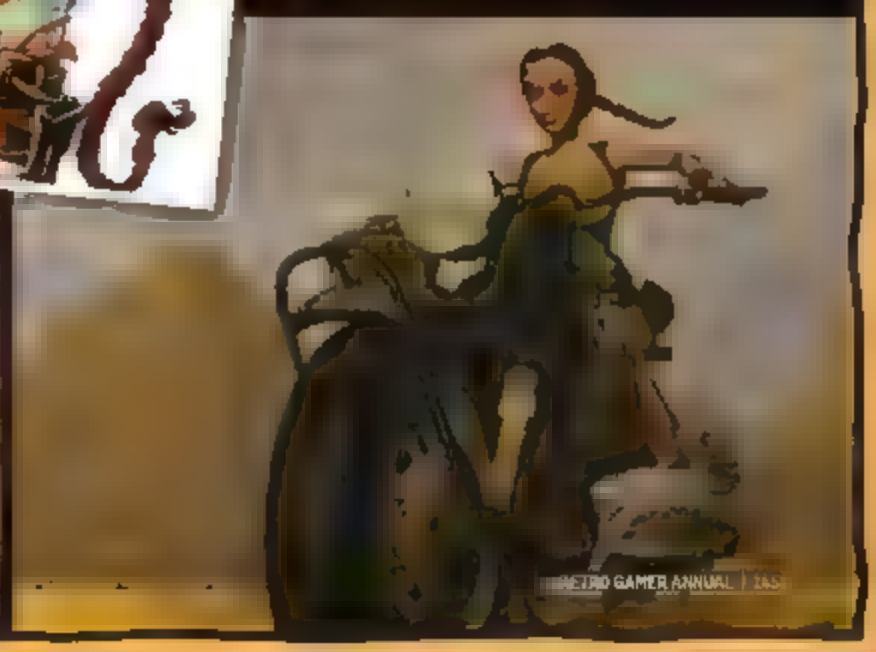
THAILAND
TOMB RAIDER: UNDERWORLD

GHANA
TOMB RAIDER: LEGEND

SOUTH PACIFIC
TOMB RAIDER III

ANTARCTICA
TOMB RAIDER III

Lara's dual pistols are just as
iconic as the character is



Ash Kapralov and several Core Design staff appeared at PLAY Expo's Tomb Raider celebration, which was organised by replayevents.com

"I prototyped Lara riding a quad bike using only the animation editor"

Stuart Atkinson

Tomb Raider II added in vehicles, something that Stuart Atkinson was particularly proud in implementing

Tomb Raider III – to really move it on, but the producers wanted it done in a year. For those who had done that for two consecutive years already it was just too much.

Luckily, the expansion of the team during Tomb Raider II provided new blood to carry the series forward. "I was finishing up creating some (unused) multiplayer levels for Fighting Force when I heard they needed FMV help on Tomb Raider II, so I offered up my services, as I was starting to see multiplayer arenas in my sleep," recalls Andy Sandham, who would follow up this involvement with level design from Tomb Raider III onwards. "My task on Tomb Raider II was to blow up the Great Wall Of China, if I remember. That was my introduction to the time-honoured Tomb Raider tradition of the willy-nilly decimation of historical sites and the laissez-faire gunning down of endangered species."

Another newcomer to the Tomb Raider III team was Peter Connelly, who would stick with the series for the rest of the Core Design era. Like many of the newcomers, he was excited to be on the team. "My first real experience [with the series] was playing Tomb Raider II," remembers the musician. "I had bought it for someone for Christmas and we were playing it extensively on Christmas Day evening. What I remember most about this was wishing I was working on such a game. Nine months later, I was working at Core Design. Though his contribution to the third game was small, Peter would become the series' main musician from the fourth game onwards.

Tomb Raider III started to branch out into new areas and particularly more action-oriented gameplay. The addition of sprint button was useful for outrunning enemies, and new enemy AI allowed for the bad guys to call for reinforcements and shut off rooms, necessitating a stealthier approach. Meanwhile, dangerous terrain additions were made including quicksand and water with deadly currents. The other big change was the addition

The rooftops of London are a dangerous place to be hanging around at night!

a quad bike using only the animation editor – I replaced her run animation and attached a quad bike to her bottom – the in-game result gave you a pretty good idea how well it would work."

On the audio front, Nathan was able to make improvements as he was more involved in the development process. "With Tomb Raider II, I had a little more development time (about two months) and although I wrote twice the number of tunes, there was a plan in my head about how it was going to piece together," the composer recalls. "I expanded on the themes, establishing new motifs, but mainly focusing on this location-specific idea that had been born in the first game. The implementation improved as I demanded control on how and when each tune would be triggered."

One of the game's most memorable moments was actually born of the tight deadline. "The game was supposed finish after the dragon battle, but it didn't feel like a satisfying conclusion, so we came up with the idea of having an epilogue," Gavin explains. "Due to time constraints the idea of reusing Croft Manor was chosen, with just a pitch battle of Lara defending her home. Then my favourite bit – the 'shower scene' where we got Lara to shoot the player – that was our response to the enquiries about nude cheats!"

Tomb Raider II was another critical and commercial success, surpassing the sales of the original. Plans were set into motion for Tomb Raider III, but this time most of the original team opted to move onto a new project. "Knowing you were leaving a big-seller along with the royalty cheques felt a bit of a silly move," Stuart recalls, "but our team wanted at least two years to develop

Raider II to a fever pitch, and Sony took advantage by signing an exclusivity deal with Eidos, ensuring that the PlayStation was the only console to receive it.

Back at Core, the team was busy trying to top what had gone before – even if it meant improving on finer details. "I was pleased to get Lara's ponytail working," says Gavin. "It had been dropped from the original because it just didn't work properly with all the acrobatic moves – it was more like she had an electric eel attached to her head that had a life of its own. But on TR II I came up with a way to get it working and was really pleased how natural it looked. The physics were ultra-simple and a complete cheat, but it did the job."

Other additions were far more substantial. Improvements to the graphics engine allowed for wide open outdoor spaces that hadn't been possible in the original game, and Lara was no longer restricted to travelling on foot. "Introducing vehicles was my idea, I'm quite proud of that," says Stuart. "I prototyped Lara riding

of a non-linear structure – while players started in India and finished in Antarctica, adventures in London, Nevada and a South Pacific island could be tackled in any order.

Upon its release in 1998, Tomb Raider III didn't fare as well as its predecessors, but remained an high-performing title all the same, shifting well over six million copies – meaning that another sequel was guaranteed for 1999. For Andy, that meant a new opportunity. "When Vicky (scriptwriter on TR I-III) jumped ship after Tomb Raider III, there was a gap to fill and I jumped into it, with a view to writing 'movie-style' TR games."

For story, we'd choose our levels first – for our team, the first and most important part of any Tomb Raider game was the 'buying books on ancient civilisations' and phase, to cement ideas that would result in a rough plot that I'd have to shape into something coherent," Andy continues. "I was reminded the other day that the next stage after this would basically be the whole team queuing up at the office scanner, coffee table history books in hand, waiting to digitise our next level texture."

Tomb Raider: The Last Revelation introduced more of Lara Croft's history through a chapter showing a younger version of the protagonist on an early adventure with mentor/rival Werner Von Croy. Though it enjoyed a slightly more positive critical reception than its predecessor, The Last Revelation was perhaps the first real indicator that interest in the series was waning – it was the lowest sales tally for a Tomb Raider game so far despite the addition of the Dreamcast as a third platform. However, management was concerned about The Last Revelation for an entirely different reason.

As the fourth release in four years, it was inevitable that creative fatigue had set in during Tomb Raider: The Last Revelation. However, the way it was expressed was a shock to players around the world. "We all wanted to kill Lara," says Andy. "Looking at Lara's avatar all day every day for two years was about as much as some of us could take. Management were pretty hands off, so for two weeks, we hatched this plan to kill Lara, and followed it through to fruition." Indeed, the game ends with Lara entombed under a collapsed pyramid entrance, a dramatic and perhaps poetic end for the adventurer.

Of course, the team wasn't going to get away with killing the company's golden goose. "By 'fruition' I mean (Jeremy Heath-Smith, Core Design CEO) finding out we had killed her and it was too far gone to reverse it, and taking us into his office and shouting at us." Andy recalls. "We backtracked quickly, but not without paying penance by having to make another game set in all the dopey bits we had out out of previous games, which became Tomb Raider Chronicles." In order to tie these pieces together, Tomb Raider Chronicles shook up

The Last Revelation is one of the most puzzle-heavy games in the original quartet.

LARA'S BIGGEST FAN

We speak to Ash Kaprielov about his love of all things Tomb Raider

What was it about the *Tomb Raider* series that drew you in as a fan?

My teenage years were quite difficult, but *Tomb Raider* provided me an escape. The levels were so vast and challenging that it would take me weeks to finish a game, weeks where I could completely forget all my problems and explore ancient civilisations instead. When I first got an internet connection I started chatting with like-minded people and, since most of the forums were in English, it let me enhance my language skills. I met many of my best friends because of *Tomb Raider* and Lara gave me the courage to move to the UK on my own.

Tell us a little about your website, Tomb Of Ash

When I moved to the UK I decided to help my Russian colleagues at LaraCroft.ru, writing them a number of articles from various Expos. Then I interviewed Andy Sandham, a level designer and script writer for *Tomb Raider 3* to *Chronicles*. The interview was translated into Russian and I realised that I had nowhere to post the original English version of it. I uploaded it onto my personal Tumblr account, received some good feedback and decided to start my own website. I first ran it on my own, but then eventually brought my Croatian friend and fellow *Tomb Raider* fan Tina on to join me as a social media coordinator. There is also April and Tatiana, who produce various fan content. We actually helped Crystal Dynamics source interviewees for the *20 Years Of Tomb Raider* Book. Our latest achievement was the co-organising of the largest *Tomb Raider* 20th Anniversary celebration yet, hosted at PLAY Expo.

What's your favourite *Tomb Raider* moment?

My favourite moment happened on 8 October 2016 when Core Design took to the main stage at PLAY Expo. Their realisation that their work is still appreciated 20 years after the first game was out was incredible. I will never forget that day and the emotions that it stirred within me knowing that I helped make that day happen. I have been to many fan gatherings but the PLAY Expo weekend was probably the first time that I felt truly connected with the *Tomb Raider* fandom.

CREATING TOMB RAIDER

A retrospective interview with Toby Gard

Wasn't *Tomb Raider* originally a Saturn exclusive?

Core was in an exclusive deal with Saturn even when *Tomb Raider* came out. We were developing the Saturn and PlayStation versions simultaneously, but there was a time period that meant that Core wasn't able to bring it out on the PlayStation – it could only have been the Saturn. That was the exclusivity. Actually, it turned out better for PlayStation owners because there were a lot of bugs in the Saturn version. We found that out after it was released, and we managed to fix and tune up the PlayStation version a little bit before it came out, so it gave us a little bit of polish time..."

What challenges did you face making *Tomb Raider*?

It was all new to be honest with you, we were only a small team and none of us had done anything like it before. Every day was a new challenge. Obviously the coders there were superb to pull off *Tomb Raider* – both of the main programmers on the title had never even made a game before. It was pretty impressive.

Was Lara originally going to be a man?

When I very, very first pictured the game of *Tomb Raider*, it was from four drawings, and those four drawings were of a dude, an Indiana Jones-style dude, in a 3D world. When I began to write up the first design document, when I was working out exactly what the character design would be, there was a time when we were thinking about being able to choose from more than one. And so I designed a male and a female character. And then I realised that with the level of storytelling I was going for, a cinematic, movie-directed style – we would end up having to do double the amount of cinematic work, and that was somewhat more ambitious than we wanted to do. I'd already designed Lara and this dude, and I liked Lara more than I liked the dude, so she was the winner. That was that.

Did any films influence you?

There was a mixture of influences. One was the John Woo movies – I'd seen *Hard Boiled* and I wanted to get that in, I was so excited about that film – at the time it was just insane. I wanted to have that kind of dual-pistol insanity going on, with leaping and shooting and stuff. The other was *Æon Flux*. In one of the shorts, she's running around with Uzis, mowing down hundreds of people – and that was pretty exciting, I thought. So for me, it had to be that Lara was a dual-wielding action star, and that became an integral part of the whole costume.

What's the secret of *Tomb Raider*'s success?

Lots of different things, I suppose. It had a really unique character. It had some really memorable moments. It had some pretty clever level design, and it had a good solid platforming mechanic. It was based in the whole history scenario, which I felt was something that was very engaging. And it had a good story.

Interview extract taken from games™ issue 60

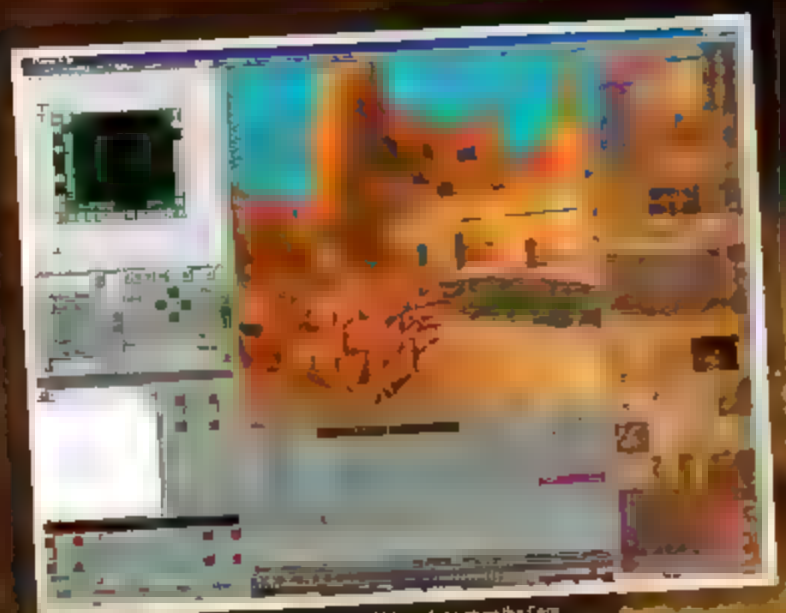
the storytelling structure of the series – instead of a linear narrative focusing on a single adventure, the game was themed around Lara Croft's funeral. Gathered mourners recounted tales of her past adventures. By this point few additions were made to gameplay – Lara gained access to a grappling hook, as well as tightrope walking and the ability to swing from horizontal bars.

However, the Tomb Raider engine was beginning to feel very dated, as the yearly release schedule hadn't permitted significant alterations. What's more, the team that had seen fit to kill Lara Croft was still in charge and no happier with the situation. "That lack of enthusiasm showed in the final product," Andy notes with some regret. "The only person on the team that was still happy was Phil, the animator, who spent all day animating Lara being slaughtered in new novel traps and enemy attacks." When Tomb Raider Chronicles arrived in 2000, it was to the least enthusiastic critical response so far, and sales were drastically lower than those of The Last Revelation at just one and a half million copies. With a burnt-out team having pushed out five games in five years, it's fair to say that the original Tomb Raider model had been well and truly exhausted.

However, from the outside the series couldn't have seemed to be in a better position. Angelina Jolie had been tapped up to star as Lara Croft in a Tomb Raider movie, and there was a new hope for the games around the corner in the form of the PlayStation 2. With new technology, the team would have a chance to revamp the gameplay of the series. Stealth and hand-to-hand combat would play a big part in the new adventure, as would the new playable character, Kurtis Trent.

Along with the new technology came another set of new staff, with a hunger to work on such a huge project. "I was thrilled, daunted, overwhelmed [almost] delighted, panicked, hyper and exhilarated," recalls Murti Schofield, a writer who had joined Core from Psygnosis. "I was also determined to give this opportunity everything I could. This was a writer's dream. El Dorado. The Alchemists' stone. The Grail. The ketchup on the bun of life. So, how did I feel? Determined."

"My first experience of working on Tomb Raider was to be sat with a pencil and paper and to be instructed to simply draw out whatever ideas came into my head as long as they were Lara Croft-related," recalls concept artist James Kenny. "I had at that time zero experience of the game, film or television industries and had been recruited by Core Design straight from studying



This level editor for Tomb Raider IV shows the grid-based structure the Core [illegible]

Water areas played a large part in the Tomb Raider games, acting as a [illegible] break from climbing.

"There was just so much that went wrong and the pressures were awful"

Murti Schofield

formation in Ballyfermot Senior College in Dublin.

Initially, things seemed to be going well. "As with most games I've worked on over the years, there are usually delays and issues that contribute to stalling a release and, as Angel Of Darkness wasn't like the previous Tomb Raider games, i.e. they were released exactly one year apart, I wasn't that phased that things were dragging on," says Peter. Unfortunately, the combination of a large team, an over-ambitious design and a management structure ill-equipped to deal with the task quickly drove the project off the rails.

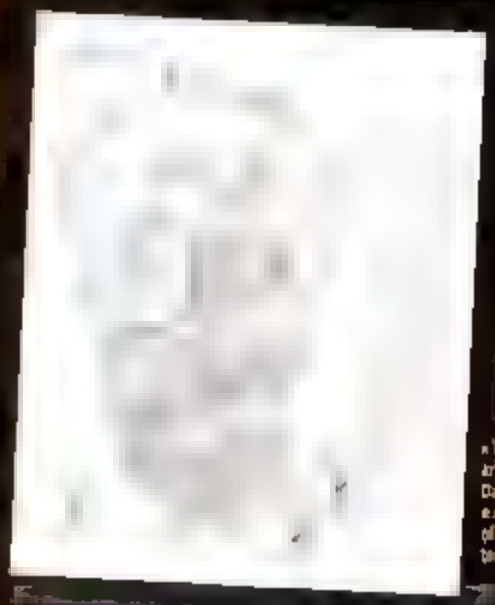
"The step up to the PlayStation 2 and the complexity that would engender was not properly envisioned by anyone at Core at that time," says James. "Also I think there was a desire to change the direction of the games in a narrative and gameplay sense and there was pressure coming from the developments in other gaming franchises." For Murti, the situation was extraordinary. "There was just so much that went wrong and the pressures were awful; I don't mean ordinary, standard industry pressures but the sense that the ship was slipping into the maelstrom and no one knew what to do. We knew things weren't going well. The game wasn't right. Deadlines kept breaking over our heads and still things were not right."

After many delays, Tomb Raider: Angel Of Darkness arrived in 2003 with much of the intended game design left on the cutting room floor. Despite selling two and a half million copies, it was given a critical kicking and is considered the lowest point in the series. With dissatisfaction rife amongst both fans and shareholders, Eidos took drastic action and removed Tomb Raider from Core Design. "As a board of directors, we did not take that decision lightly," explains Ian. "Core Design had done an incredible job in developing a new title year-on-year from 1996 to 2000. Then along came PS2 and with its new tech challenges which Core Design struggled with for too long. Instead of it being another hit in the series, Angel Of Darkness was not far short of a disaster when it came out in 2003. Sales were below expectation and development of Tomb Raider was moved to Crystal Dynamics. For a UK company, moving the development of its prized asset from Derby to California was a big decision to make but, as it turned out, absolutely the right one to make."

History has vindicated the decision – under the care of Crystal Dynamics, the series has returned to form critically and commercially. However, from an outsider's perspective it seems like a harsh decision, especially as Core Design had only produced one truly bad Tomb Raider game. Surely the tens of millions sales it had generated prior entitled Core to another crack of the whip? "Many on the development team at Core had enough. Some were burned out and wanted to work on new games. It was definitely time for change," Ian responds. "But nobody should ever take away or diminish the contribution that Core Design made in not just creating Tomb Raider, but making it an iconic franchise."

Murti agrees: "If Core had been given another chance would it have been different? Who knows," he ponders. "It would have required a restructuring of management practices and a shake-up – which seemed unlikely. And with the benefit of hindsight it was time for someone else to take Miss Croft's future in hand."

Over at Crystal Dynamics, the team had been working on the well-regarded Legacy Of Kain 3D,



Concept art for Angel Of Darkness shows a stark absence of any natural [illegible]

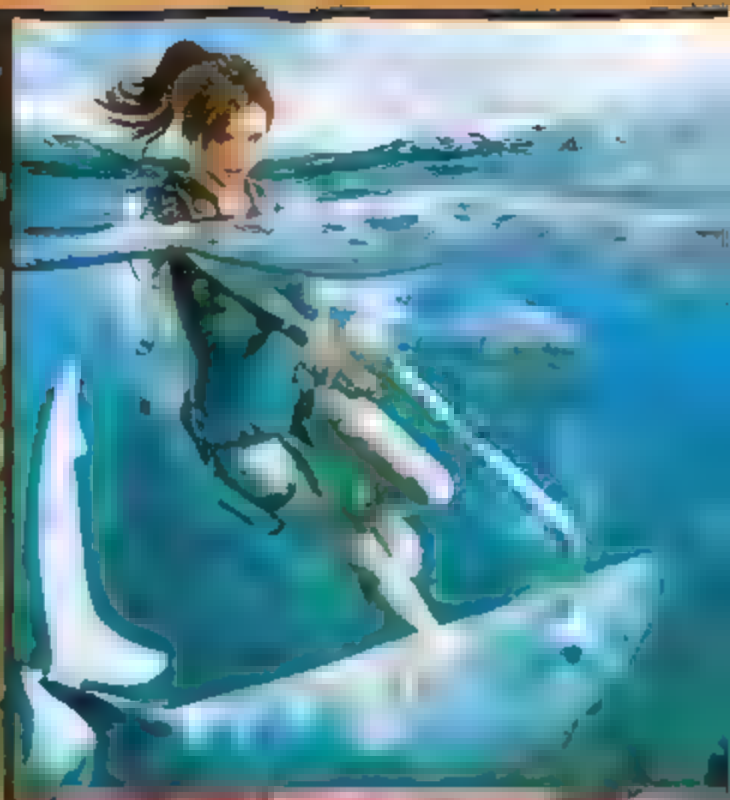
Though planned as the first part of a trilogy, Angel Of Darkness marked the end of Core's Tomb Raider timeline.

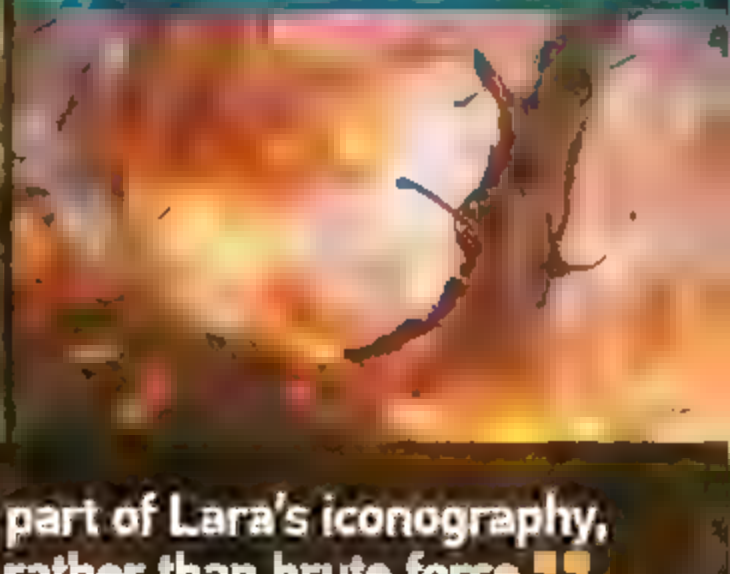
Ancient foes often wield powers that can barely be distinguished from magic.

The concept art for Anniversary shows a new aesthetic design applied to the older ideas from Core Design

action-adventure games for some time, but getting the Tomb Raider job was a big shock. "For us, there was a sense of, 'Oh my gosh!' Tomb Raider was such a big franchise with so many fans – if we want to take something like that on, we'd have to do it so right, so it felt very much like a high-stakes proposition" recalls Noah Hughes, creative director at Crystal Dynamics. "But it came up more as an opportunity, with Eidos saying, 'Hey, would you guys be interested in working with this character?' From that perspective it was exciting, as it fit comfortably with our desire to create experiences that blended a lot of stuff – environmental exploration, combat and puzzle-solving."

In developing Tomb Raider: Legend, the first game of the Crystal Dynamics era, it was important for the team to establish which aspects of the existing games they wished to retain. "Lara's intellect and puzzle-solving, we wanted to keep both of those," Noah offers as an example. "Additionally we felt that traversal and exploration were important, these platforming elements – how could we provide a traversal toolset to make the world a jungle gym? And, of course, the sense that around each corner there might be a surprise, even the less noticeable corners could hold a secret. Also as combat system of sorts, the dual pistols are part of Lara's iconography, but focused on agility rather than a brute-force flavour of combat." There was one more significant element that the team homed in on, too. "We called it 'flair' at the time – things like the handstand, so you could impress yourself as a character with moves that weren't critical to progression."





"The dual pistols are part of Lara's iconography, but focused on agility rather than brute force"

Noah Hughes

During the Tomb Raider: Legend era, Meagan Marie was just a fan of Tomb Raider, but today she is Crystal Dynamics' community manager for Tomb Raider and the author of the official history guide, 20 Years Of Tomb Raider, giving a unique perspective on the development of the series. "I love Keeley Hawes [as Lara] especially, I love how quippy and sarcastic she was – she might be one of my favourite voice actresses," she notes. "I also enjoyed the fluidity in combat, the acrobatics – that's something that Crystal Dynamics pushed as a way to differentiate itself from Core and leave its mark on the franchise. Moving away from the grid-based movement and moving towards very fluid traversal, fluid combat, and that was something I remember being very impressed with."

In order to make sure the team got things right, Toby Gard was brought into the fold as a consultant. "It was great to have Toby because he was so intimate with her design, and it gave us the ability to be a bit more bold as we explored different options, but we had insight as to where we were losing that core DNA," Noah explains. "So from a character design perspective he was a great resource, and he became very involved in the story – I'm not sure if he has a writing credit, but I know he and Eric Lindstrom worked closely together. We were trying to bridge two canons, the Core games and the movies which had gained popularity, so it was another case where having Toby's insight into what was 'evolving' versus what was 'breaking' was important. Even to this day I'm grateful for having that overlap with Toby, because it gave us insight and the confidence to find our way without completely copying and pasting."

The results were an immediate vindication of the decision to go with Crystal Dynamics. The critical reception and sales of Tomb Raider: Legend were a marked improvement over the last couple of games, with four-and-a-half-million copies sold. That success ensured that two follow-up titles went into production and Crystal Dynamics began to focus on the past, present and future of Tomb Raider. Although it didn't seem necessary at the time, Lara Croft's reinvention was going to become important.

"That's something that the team at Crystal Dynamics recognised a lot earlier than most people realise," reveals Meagan. "After finishing Legend the team split, and a small team took Tomb Raider: Anniversary and another took Tomb Raider: Underworld, and started working on that, but there was also a small group that was two

people for a couple of years who sat and ideated the future of the franchise, Jason Botta and Tim Longo, before even entering preproduction. They knew that after Underworld, which would be considered the end of a trilogy, that something major needed to be done. They recognised after a while of exploration that an origin story made the most sense, and that letting the players see those moments where Lara was forged into the Tomb Raider would make her more relatable."

Of course, this reboot was many years away and the two other projects would arrive sooner. The first of these was Tomb Raider: Anniversary. This was in competition with Core Design's final attempt to design a Tomb Raider game along a similar premise, though neither team necessarily knew that the other was in the running. Where Core had focused on the PSP, Crystal Dynamics had a multi-platform strategy that ultimately got the nod from the publisher. The resulting game was a loose remake of the original Tomb Raider in the new style. However, despite strong critical performance, good reviews didn't translate into exceptional sales and it remains the series' commercial low point.

For the larger team, Tomb Raider: Underworld was Lara Croft's first step into another new generation, this team targeting the Xbox 360 and PlayStation 3 as lead platforms. "One of the things we did with Underworld was that we ended up pushing the technology," recalls Noah. "We had full...

Cinematic scenes were just as important to the Crystal Dynamics games as Core Design's efforts.

Lara's overall design was overhauled for the first Crystal Dynamics game.

BY THE NUMBERS

The sales and Metacritic scores from the main series

TOMB RAIDER 1996

SALES: 7.5 MILLION

SCORE: 80 %

TOMB RAIDER II 1997

SALES: 8 MILLION

SCORE: 83 %

TOMB RAIDER III 1998

SALES: 6.5 MILLION

SCORE: 78 %

TOMB RAIDER: THE LAST REVELATION 1999

SALES:

SCORE: 79 %

TOMB RAIDER CHRONICLES 2000

SALES: 1.5 MILLION

SCORE: 70 %

TOMB RAIDER: ANGEL OF DARKNESS 2003

SALES:

SCORE: 56 %

TOMB RAIDER: LEGEND 2006

SALES: 4.5 MILLION

SCORE: 82 %

TOMB RAIDER: ANNIVERSARY 2007

SALES: 1.3 MILLION

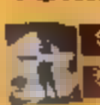
SCORE: 81 %

TOMB RAIDER: UNDERWORLD 2009

SALES: 2.6 MILLION

SCORE: 76 %

TOMB RAIDER 2013



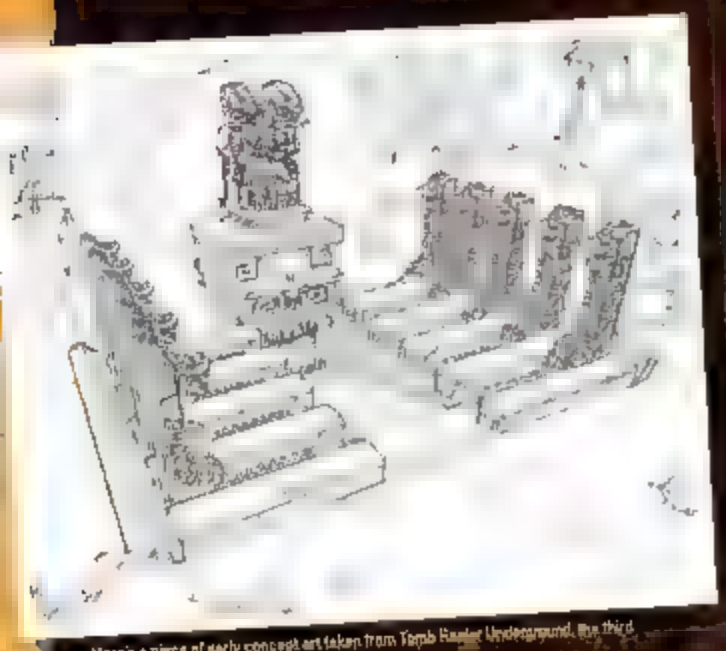
SALES:

SCORE: 86 %

RISE OF THE TOMB RAIDER 2015

SALES: 1 MILLION SO FAR

SCORE: 87 %



Here's a piece of early concept art taken from Tomb Raider Underground, the third game in the series Crystal Dynamics worked on.

motion-capture actors rather than animation, which we hadn't done in the past, but we ended up with a similar moveset. But in some ways, the gameplay didn't move as far forward as the technology did." Indeed, Tomb Raider: Underworld did better upon its release in 2008 than Anniversary had managed, but it still didn't live up to the critical or commercial performance of Tomb Raider: Legend. Fortunately, the aforementioned foresight of the team meant that new plans had been laid for a reboot.

"We wanted to make sure we weren't falling into a 'myth of the week' pattern – we wanted to make sure our stories were character defining and not just adventures to go on," recalls Noah. "We had also gotten feedback that Lara as a character didn't feel fresh to people, so there was a sense that there could be audience fatigue or a lack of relevance to her as a character, so we took the goal of evolving gameplay and invigorating her character story, but also making sure that, on top of all of that, we were recreating a relationship between the character and the audience."

For the first time, we saw Lara Croft not as an adventurer, but as a newcomer to exploration whose experiences would test her very will to survive. "Part of the unrelatability of Lara was that because she had infinite money and was so skilled, of course she was going to win. We felt that we had to place her in a situation where she had to earn her success, and isolate her from the support that she had, to make you believe that she could lose a battle." This led to the introduction of survival mechanics, as well as character development through an experience system.

The reboot, simply named Tomb Raider, managed to take cues from popular action-adventure games, like the Uncharted series, while retaining the feel of a 'Lara Croft' adventure. The approach worked well, as the game earned a fantastic reception – the reboot became the bestselling game in the series, with over eight-and-a-half million copies sold to date.

A follow-up was inevitable, and the pressure was on following the previous game's high sales. "It's always terrifying to have that amount of success, and we wanted to make sure it wasn't a fluke," Noah confides. "We looked at it as a challenge of how we figure out how to improve on that." Rise Of The Tomb Raider charts Lara Croft's growth in confidence following the events of the reboot. "In Tomb Raider you look at Lara's transition from being an explorer interested in the world to someone forced to survive," notes Will Kerslake, lead designer at Crystal Dynamics. "In Rise we continue that process, but we also see her choose to go on an adventure, so her character continues to evolve."

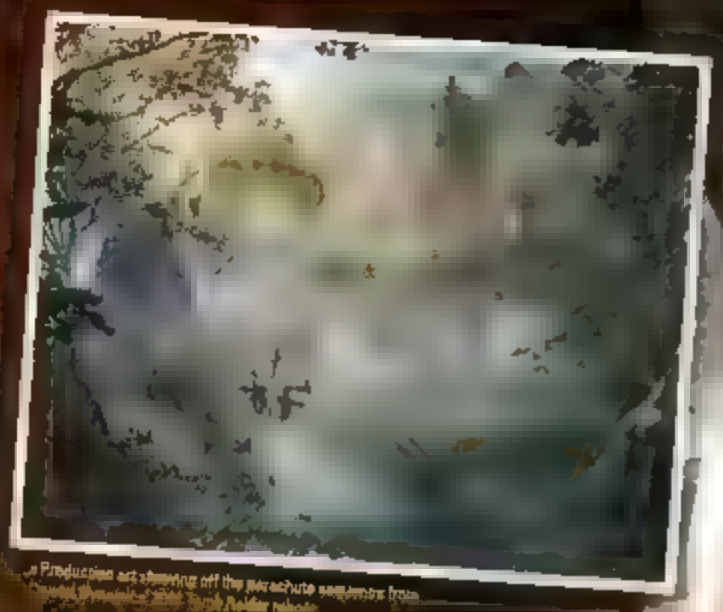
One of the things that the team was keenly aware of was the need to include more tombs for players to explore. "We did fill [the setting] with history," Noah

Croft Manor is burning! What has caused Lara's home to erupt in flames?

Combat now typically takes place using an over-the-shoulder perspective, as is common today.

LOVING LARA

We asked you which iteration of Lara Croft was your favourite



Crystal Dynamics are showing off the parachute sequences from [illegible] Tomb Raider reboot.

recalls of the 2013 game, "but those layers were, for example, World War II, so they told stories a week before Lara got there, 50 years before Lara got there, and hundreds of years before she got there. But what we found was that because they weren't ancient places with ancient secrets, they weren't scratching that itch entirely." Rise Of The Tomb Raider initially launched on Xbox One, Xbox 360 and PC in 2015, and has recently launched on PlayStation 4, to a very positive critical reception that narrowly edges that of the 2013 reboot.

In many ways, Lara Croft's transformation into a survivalist is a fine way to represent Tomb Raider's journey. From a starting point of fame and fortune, the series has had to adapt to survive against a backdrop of sweeping changes in game design and consumer tastes, as well as the occasional misfortune. Against all of that, the people behind Tomb Raider have reinvented it over the course of two decades to remain one of the world's most beloved brands, and Lara Croft stands alone as the icon representing that monumental effort.

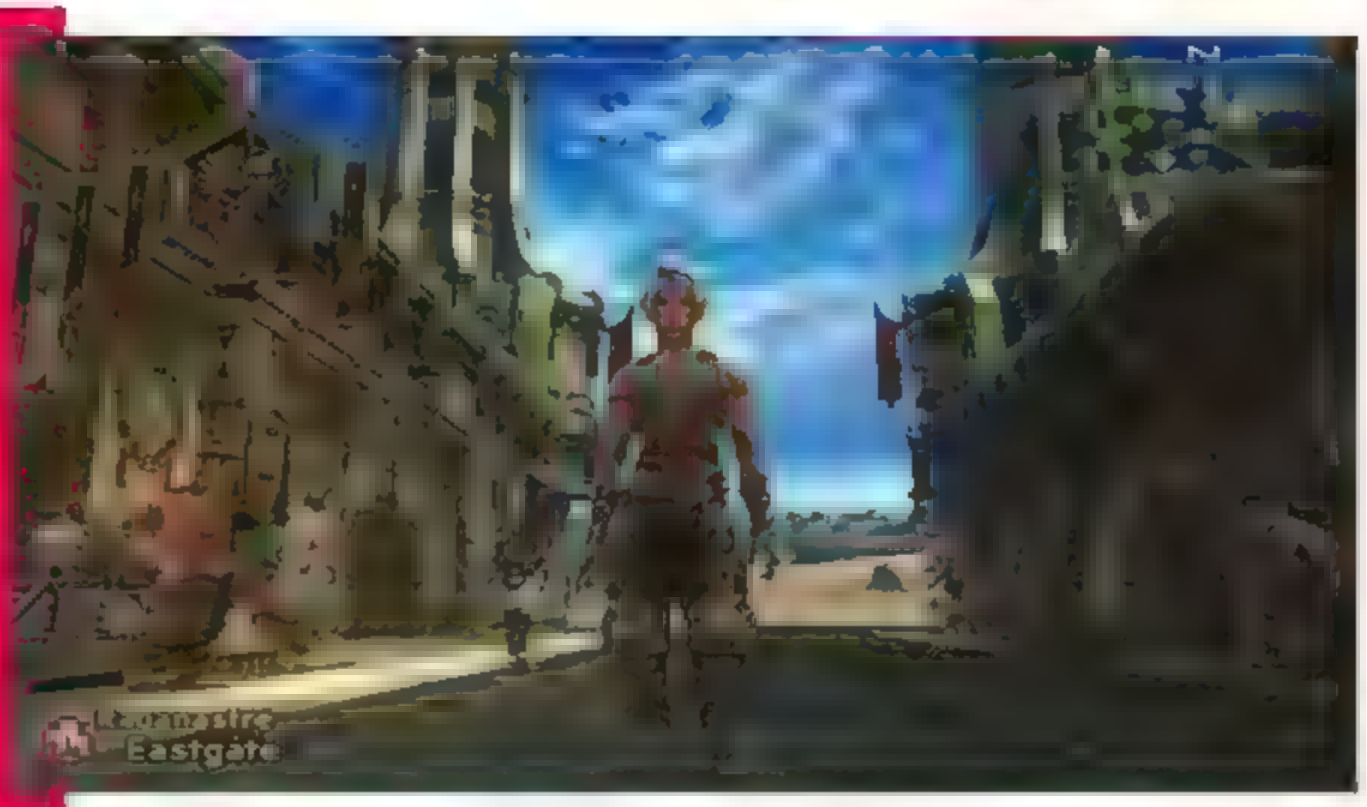
Indeed, the future looks bright – the Crystal Dynamics team won't speak of any future plans just yet, but with audiences still discovering Rise Of The Tomb Raider, an ongoing comic series and a new movie in the works, it's fair to say that Lara Croft is perhaps just as popular as she ever was. "Lara has transcended gaming in a way that I think no other character has – because of the movies, because she was considered a virtual model for a while – so I think she does hold a unique place in gaming history that I don't know if any other character could compete with," concludes Meagan – and it's very hard to disagree with her.

Special thanks to Ian Dickson, Ash Kaprielov, Alex Varrey and the organisers at replayevents.com for making this article possible.

Rise Of The Tomb Raider is one of the first games to benefit from the additional power of the PS4 Pro.

THE MAKING OF

FINAL FANTASY® XII



YEARS IN THE MAKING, THIS PS2 GAME WAS A TOTAL REINVENTION OF THE RPG SERIES. NOW, AS IT RETURNS TO MODERN CONSOLES IN HD, SAMUEL ROBERTS SPEAKS TO SQUARE ENIX ABOUT CREATING THIS DARING CLASSIC

Final Fantasy is well known for throwing out its characters and worlds between entries and starting again. To an outsider, it might look like they're just swapping one set of melodramatic, spiky-haired and buckle-clad teenagers for another, but this is far from the only thing that changes in this RPG series. From 1988's Final Fantasy onwards, Squaresoft would reinvent the underlying systems of the combat and character progression in every sequel. Yet it would still retain a very traditional turn-based battle system right up until Final Fantasy X on PS2 – a predictable sequence of random encounters, an iconic victory theme and some form of levelling up. For a long time, all of this seemed resistant to change.

Vaan and Penelo are your typical 'fish out of water' protagonists who we've seen countless times before

Final Fantasy XI was the bravest game released in the series. It jettisoned turn-based combat for a real-time system that had no random encounters. Enemies were instead spread across sprawling fields, and the transition between combat and exploration was seamless. Using a smart new system called Gambits, you could program your characters to automatically execute perfect party strategies, telling them exactly when to attack, heal or cast a spell. Even by the standards of a series built on reinventing itself, it was radical.

FFXI came from the lineage of the PSone's Final Fantasy Tactics and Vagrant Story, sharing their setting of Ivalice, as well as their character designer (Akihiko Yoshida) and game director (Yasumi Matsuno). Several years into a long, five-year-plus development cycle, Matsuno dropped out of FFXII reportedly due to health concerns. While much of the story surrounding Final Fantasy XII's creation became about Matsuno's departure, he was joined as codirector of the project by long-time Final Fantasy battle design mastermind Hiroyuki Ito. This meant the vision of the game didn't change too much when Matsuno left.

"We had many experienced development staff in the team, such as Hiroyuki Ito, who was in charge of many of the battle designs for previous numbered Final Fantasy titles, and had a clear vision of what we had to do up to the game's launch, so the development of the game or the overall vision was not really affected," says FFXI's project manager Hiroaki Kato.

Random enemies were done away with in Final Fantasy XII – instead, enemies patrolled the world

It's previously been reported that after Matsuno departed the project, the development team was restructured, but Kato denies this was the case. The project was extensively delayed from a targeted summer 2004 release date, eventually reaching Japan in May 2006, but this was due to the ambition behind the project rather than his leaving. "That reorganisation of the development team did not actually happen, so no differences in the process arose from this," Kato says. "The biggest challenge in Final ▶

Fantasy XI was transitioning from the menu-based battle system separated from the exploration in previous Final Fantasy titles, to seamless real-time battles using the Gambit system. "We also added in a great many more elements for replay value, such as the bounty hunts, so we needed to adjust and balance out the game itself and the battle system, and that is what we needed the time for."

The Gambit system lets players choose their abilities, and when to execute them. You can set your characters to automatically attack enemies on less than 50 per cent health, for example, or to heal allies who are on less than 30 per cent health – then you can prioritise these commands to achieve the best results. The fighting plays out automatically, but you can also manually select moves if needed. The Gambits start as simply as characters attacking the enemies who are nearest to them, though it's later made complicated by many more abilities, customisable conditions and additional Gambit slots. It's very basic programming, but it's also more complex than anything Final Fantasy had challenged players with before at that time.

"Depending on the player, with their individual tastes and preferences, some of them may feel Final Fantasy XII's game system is too complicated," Kato says. "However, from a development point of view, rather than seeing it as complicated, we feel that these different opinions come from how well different players can get used to the new systems that have been implemented," he continues. "When you look at current-generation games, there are many games released with an open-world setting and real-time battles where the character development is deep and players can really enjoy the exploration. I feel that the players have gotten used to playing these kind of games, so from that perspective, I don't think Final Fantasy XI is a complicated game. I recognise Final Fantasy XII as a game that has depth and that lets players enjoy many playing styles."

FFXII's visual style still looks great today, a fantastic mix of sci-fi and traditional fantasy.

"I RECOGNISE FFXII AS A GAME THAT HAS DEPTH AND THAT LETS PLAYERS ENJOY MANY PLAYING STYLES."

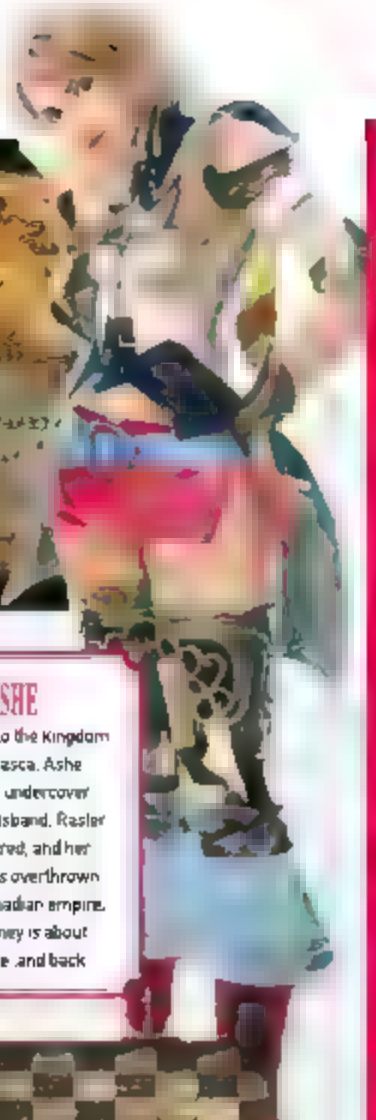
He's not wrong – that flexibility and strategy is why Final Fantasy XII is so exciting. The Gambit system is coupled to the License Board, which lets players unlock the new abilities they acquire throughout the world, as well as powerful attacks and summons. It is a little trickier to grasp than something like, say, Final Fantasy X, where all that's required to use an ability is to unlock it, then select it in battle. But the nature of Gambits means the player gets the pleasure of building a sequence of intricate strategies, then watching them play out. There's far more tactical scope to it than mainline Final Fantasy typically offers.

With no random battles, the continuous cycle of fighting and exploring offers a very different pace to previous games, where battles are famously heightened with dramatic music and punctuated with the aforementioned victory theme. This only plays infrequently in Final Fantasy XII. You can chain combos of enemies to obtain better loot, and take part in bounty hunts for specific monsters. What this seamless design does is create a more tangible world, and the

The transition from freely wandering around to battles seamless

PENELO

Vaan's childhood friend and marginally more interesting than him, she gets dragged into the war as well. Penelo dreams of becoming a dancer, and her Quickening attacks – FFXII's equivalent of Limit Breaks – reflect that.



» The world of Ivalice is large – so large in fact, that it has its own universe of games.

sense of a functioning ecosystem between its wildlife.

"Final Fantasy XII was a title where we committed to really building up the world of Ivalice," Kato says. "While we were setting out the climate, cultures, races and the state of affairs of Ivalice, it seemed that implementing the ecosystem of the monsters was the next natural step. The fact that many players who have just started playing Final Fantasy XII will accidently attack the Wild Saurian in the Dalmasca Estersand (it's a high-level monster that is not hostile towards the player) and get defeated, leading to a game over is kind of amusing." Most players will probably remember that giant patrolling dinosaur from the game's opening hours – it's intimidating to look at, but by leaving you alone, it's the world's way of telling you that not everything in FFXII is out to kill you.

While Ivalice is divided into too many truncated land-masses to feel truly open-world in the way that something like Skyrim does now, it's leagues ahead of the small pockets of towns and pared-down world maps seen in previous Final Fantasy games. The architecture of towns in FFXII is dense, and shops are filled with objects. Ivalice is portrayed in a complete-feeling way.

This setting had previously appeared in several other games created by Matsuno, but this was our most comprehensive look at Ivalice yet. "At its core, Final Fantasy Tactics had a miniature garden-like field where the 2D characters battled in a turn-based system, while Final Fantasy XII was reproducing Ivalice's environments in 360 degrees with real-time movement and battle progression. So you could say it is only natural that Final Fantasy XII required a greater density of information in the art." Being fully 3D makes a huge difference, and more in line with the RPGs we're used to today – you could spin the camera around and enjoy the detail of the world for the first time. It's helped the game age incredibly well.

FFXII's combat and exploration offsets some of the game's weaknesses, like its thoroughly boring protagonist, Vaan, and an overplayed, dry story of a resistance group ousting an occupying evil empire. Your hero is overshadowed by the cast that surrounds him – including rightful heir to the Dalmascan throne, Ashe, and Han Solo-esque sky pirate Balthier. ▶

» Balthier and Vaan reminds us of Vaan and Chewie – only they've been kicked through JRPG Design 101.

ASHE

■ The heir to the kingdom of Dalmasca, Ashe operates undercover after her husband, Rasler is murdered, and her kingdom is overthrown by the Archadian empire. Her journey is about taking the land back.

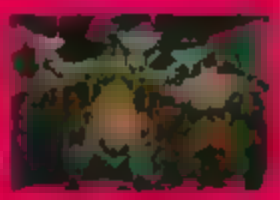
» The License Board was thrown away for a proper Job system in FFXII's rereleases.

THE IVALICE ALLIANCE

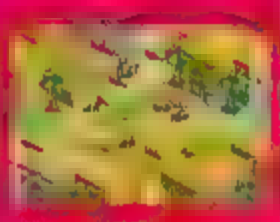
The games that share Final Fantasy XII's world

FINAL FANTASY TACTICS

VAGRANT STORY



FINAL FANTASY TACTICS ADVANCE



FINAL FANTASY XI: REVENANT WINGS

FINAL FANTASY TACTICS A2: GRIMOIRE OF THE RIFT

CRYSTAL DEFENDERS

FINAL FANTASY XII: STORMBLOOD

FRAN

■ And what if Chewbacca was an absurdly dressed bunny lady? Fran is Balthier's partner on the Strahl. She's a Viera, a kind of Amazonian rabbit-eared species, though she's considered an outcast by her people now.

▶ There's also the memorably weary wanted man Basch, alongside Vaan's slightly-less-dull-friend Penelo. Balthier's partner, the rabbit-like member of the Viera species, the ludicrously dressed Fran, helps make Ivalice feel like a varied backdrop with a deep, pre-existing lore.

All of this is lifted by a localisation job that's significantly better than that seen in Final Fantasy X. The drama is professionally constructed, one-liners land well and the cast is memorably varied in nationality. It doesn't sound like bad anime, basically, and that makes a huge difference. "I think Final Fantasy X's voice acting was good as well," says Kato when we point out criticism of the game. "The reason Final Fantasy XI got great reviews was because we learned from our experiences of doing the voice acting on Final Fantasy X. I mean, Final Fantasy X was the first ever numbered Final Fantasy title that implemented voice acting! We had more experience in development on the PlayStation 2 hardware, so we were able to create smoother character expressions with voices, and the localisation staff that were working on this game were excellent. I think another big point was that we used different voice actors with different accents, such as American English, British English, Latin American English and Northern European English, depending on the character's origin and race, to give the game more realism."

The Viera have Icelandic accents, for example, while the decision to make the Archadian Empire British and Dalmascans American was borrowed straight from Star Wars, according to a *US Gamer* interview with translator Alexander O Smith and casting director Jack Fletcher. That said, the story generally has a bit of Star Wars feel, with its big-dreaming protagonist, and obvious analogues to Princess Leia and Han Solo in Ashe and Balthier respectively – particularly as the latter pilots a cool airship.

BATTLE SYSTEMS

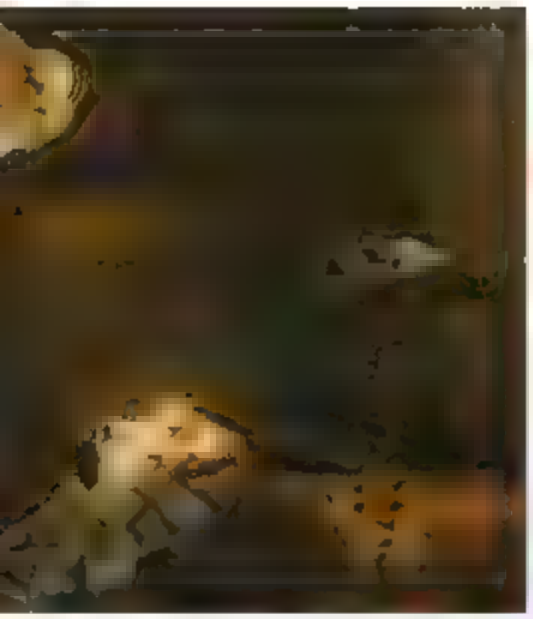
Your guide to fighting Square's 12th fantasy

THE THIN RED LINE

■ This line – blue for allies, red for enemies – indicates which character is currently being targeted by whom.

GAMBLING ON GAMBITS

■ This 'G' symbol indicates that Gambits are currently active. Note that Balthier's are not, meaning he is being manually controlled by the player.



Rather than being inspired by George Lucas' space opera, though, Kato instead suggests they were both tapping into similarly pervasive staples of popular fiction. "We weren't influenced by Star Wars (but personally, Star Wars is one of my most favourite films). Final Fantasy XII has what you might call quite orthodox archetypal characters and story, so we were developing it with that in mind. I think Star Wars was also created with an orthodox, archetypal storyline and characters, so some players may perceive that we were influenced by that. People often ask if Star Wars was influenced by this work or that too, but when trying to create an archetypal, orthodox story it is the same kinds of easily recognisable themes and content that will appeal to viewers or players, so they may well confuse the fact they are easy to understand with having seen them somewhere else before."

Final Fantasy XII returned in July with The Zodiac Age, a PS4 HD reissue that's built on the International Job System version only released in Japan on PlayStation 2. It's not quite the same game as the original, with the License Board traded for a dedicated job progression system, allowing for more meaningful differences between each of the party members. In this version, you can assign two jobs to your characters for more flexibility. There's also an autosave function this time around, a minimap and a high-speed mode to make those battles go by quickly, alongside other tweaks.

▲ If you're sad that FFXII's remaster entitled The Zodiac Age is now available to play on PS4

▲ Like every JRPG, many NPCs deal out superfluous dialogue

The goal isn't to simplify this RPG, just to give players more of a chance to understand its systems. Final Fantasy XI throws players in at the deep end, and clearly critics didn't mind at the time, but opening the game up to more people is no bad thing. It's hard to dispute that the main attraction of this reissue is seeing Ivalice and its characters in HD, though. It's worth remembering that Final Fantasy XI came out after The Elder Scrolls IV: Oblivion – this was one of the PS2's last big games. Like Clover Studio's Okami, it showed how much potential was still left in the hardware at the time.

"Final Fantasy XII was a title that was loved by many players, and we heard many voices from fans asking to create a high-definition version," Kato says. "We not only just made it high-definition, we implemented new gameplay systems and improved the game vastly, so I feel the players can enjoy a new playing experience in Final Fantasy XII. In relation to the art, we built the original game pushing the very limits of the PlayStation 2, so when looked at in hindsight from the current generation, it may well appear to have been out of its time. I feel that because we were able to create it like that, it made it perfect to convert into a high-quality, high-definition game."

Akihiko Yoshida's character designs still look fantastic today, with an almost painterly style to the 3D models, particularly around the eyes. This stops the game from dating quite as fast as some older 3D games do – the translation of the art is amazing. "I think that effect comes from how hard we worked on creating the characters to look like the original Akihiko Yoshida drawings are actually moving," Kato says. "In Final Fantasy X, The Zodiac Age, we have been able to improve the visual depictions that were limited by the PlayStation 2 hardware even further. I heard they had the new visuals shown to Mr Yoshida as well, and carried out the improvements based on the original art with his supervision, so I hope the fans can enjoy that."

FFXII marked the last time the long-running RPG series was truly ahead of the curve, and it warrants such a celebration. The series' great strength, more so than creating grand stories and iconic characters that appeal to young people, is in brilliantly designed and complex battle systems that are presented simply to the player. The developers wanted to create a new version of that in a well-realised world, and they undoubtedly succeeded. "Honestly, that intention was so strong that we don't really have a feeling that we left a legacy or anything like that," Kato says. "Personally, I really like open-world games with seamless, real-time battles, so seeing games with that kind of system being released since Final Fantasy XII makes me really happy." ★

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